

**‘Cottoning On’ to Workers’ Housing:  
A Historical Archaeology of Industrial  
Accommodation in the Derwent Valley  
1776-1821**

**Two Volumes**

**Volume 1 of 2**

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**January 2015**

## **Abstract**

This PhD investigates cotton workers' housing at four industrial settlements within the Derwent Valley, Derbyshire. These sites at Cromford, Belper, Milford and Darley Abbey are recognised as key communities within the UNESCO World Heritage Site, the Derwent Valley Mills. Whilst large amounts of scholarly effort has been dedicated to the study of these sites the primary focus has been on the mill complexes and their industrialist owners, Arkwright, Strutt and the Evans. This study uses a buildings-led approach to examine three major themes. Firstly, the design and construction of workers housing, particularly in light of the interaction between occupant and patron agendas. Secondly, the study offers a revaluation of the typological approach taken to workers' housing, linking exterior elevation with interior plan form. Thirdly, this thesis considers the living standards of occupants, particularly how the experience of domestic space changed in the later decades of the eighteenth and early nineteenth centuries. Overall this approach has allowed a reconsideration of workers' housing in this unique and highly diverse industrial landscape.

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Copyright, Rightmove)

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## **Acknowledgements**

In undertaking this PhD I owe thanks to various people who have offered their input and guidance. Firstly, I am extremely fortunate and grateful to have been supported by my supervisor, Dr Kate Giles. Kate's guidance and encouragement has been unwavering throughout my PhD and I am deeply indebted. I would like to thank the Department of Archaeology, University of York, for partly funding this PhD. I am also indebted to all my friends and colleagues who have encouraged me and shared my enthusiasm for these Derwent Valley settlements. Their subsequent visits to Derbyshire have really helped to boost tourist numbers!

I would especially like to thank the homeowners who have let me in to their homes. Without their interest and kindness this PhD would not have been possible. I would also like to thank the staff at the Derbyshire Records Office at Matlock, Derbyshire County Council and at the National Monuments Records for sharing resources for this research with me. Gratitude is also due to members of the Derwent Valley Mills' community who have shared their time and knowledge with me and who appear in this PhD as personal communications. In particular, I would like to thank: Heather Easton, Adrian Farmer, Barry Joyce, Tony Short and Mary Smedley.

The thesis also owes a lot to my Academic Writing Tutor, Steve Campbell and his patience.

Finally I would like to thank my cousin Elizabeth Sanders and Kirsty High for the hours spent proof-reading; my dad Peter Lilley for accompanying me on the visits to the houses; and my fiancé Dave Barber who got me through it all! Their unconditional support throughout this PhD has been unwavering. Thank you.



## **Authors Declaration**

I declare that the work in this thesis is original except where indicated by special reference in the text and no part of the thesis has been submitted for any other degree. Any views expressed in the thesis are those of the author and in no way represent the University of York. The thesis has not been presented to any other university either in the United Kingdom or abroad.

## Introduction

This thesis investigates industrial housing constructed along a single 24km stretch of the Derwent Valley in Derbyshire (figure 1.0; appendix 3). Created in the final three decades of the eighteenth century, workers' houses at Cromford, Belper, Milford and Darley Abbey formed the first purpose-built industrial communities connected to mechanised cotton production. Scholarly research has attached a particular significance to these sites by referring to the Derwent Valley as the location for "the birth of the factory system" (UNESCO inscription documentation). Thus these four mill complexes underpin traditional academic discussion regarding the origins and trajectory of early industrialisation (Chapman 1976; Lemire 1991; Nevell 2011). In addition, these sites have been linked to new ways of living and therefore have informed scholarly research into capital and labour relations in the early-modern period (Chapman 1976; Symonds and Casella 2006, Jackson *et. al* 2010). As a result it has been argued that the settlements considered in this thesis were the first generation of philanthropic textile communities (Jackson *et. al ibid*). Nonetheless, this type of academic analysis of the Derwent Valley is historically focused and has tended to centre on the more technological aspects of manufacture or personal lives of millowners, rather than investigate the socio-cultural implications. This thesis breaks away from this conventional approach to offer a buildings-led study of workers' housing across the four sites. Through an unprecedented examination of surviving examples, this thesis creates a new typological sequence and uses this to investigate the construction, use and lived experiences within these properties. Consequently it is argued that the significance of these workers' houses has been underappreciated and that they represent a far more complex classification of domestic architecture than previously considered.

The historical significance of the Derwent Valley is well attested, having UNESCO World Heritage Status and featuring within English Heritage listing selection guides (2007). In spite of this, academic interest in the valley has focused on the manufacturing developments of the late eighteenth century with the introduction of waterpowered cotton spinning machinery (Smith 1965, 54 & 70; Cooper 1991, 12). In truth, the association of the Derwent Valley with waterpower technology is far older,

traceable at least to the beginning of the eighteenth century with the construction of T. Cotchett's silk mill in 1704. Although not successful due to a lack of mechanical application, Cotchett's venture did at least prove that the river was suitable for powering large-scale complexes. In 1721, the Lombe Brothers reused Cotchett's site and established their own waterpowered silk-throwing technique to great success (Menuge 1993, 38). However, within the majority of discourse concerning the development of the Derwent Valley, Cotchett and Lombes' early pioneering mills receive little more than passing reference.

In contrast, the events from 1771 onwards have been extensively examined as part of the established historical account of the industrialisation of England. The influential partnership between Samuel Need, Jedediah Strutt and Richard Arkwright, has been considered as the catalyst for the development of both the Derwent Valley and the English cotton industry (Fitton and Wadsworth 1958, 1 & 60-61). Using Arkwright's newly-patented spinning technology, the first waterpowered cotton mill at Cromford, prompted a series of copycat complexes along the valley (Cooper 1991, 65-70). By 1787 over 145 mills were in operation nationwide, using Arkwright's technology (Berg 1985, 40). Thus this period and the achievements of the Arkwright-Need-Strutt partnership have been regarded as the dawn of a new manufacturing phase, characterised as a period of drastic social and economic change (Berg 1985, 189). However, as Berg (*ibid*) and Tarlow (2007, 10) both note, the portrayal of this period as one of continuous development and progression has caused significant limitations in its study as researchers continue to self-select elements of change, rather than continuity. This has fostered the mistaken belief that the *presence* of innovation equates a *prevalence* of innovation. As a result, within the Derwent Valley it is only those elements which fit within this model that have received substantial scholarly interest.

This thesis presents a re-evaluation of the purpose-built workers' housing constructed as the mill complexes of the Derwent Valley expanded. It represents the largest detailed inter-site examination of these settlements and uses an archaeological methodology to demonstrate the considerable diversity behind their construction. Through systematic observation of the building fabric, a new agenda is established

which considers a wider breadth of housing examples beyond the ‘innovative’ and ‘original’. The results reveal a far more nuanced picture of economic, social and cultural factors than previously acknowledged and argues for a reassessment of the way in which ‘industrial’ and ‘domestic’ elements are researched in understanding the development of industrial accommodation. This challenges the traditional assertion that Derwent Valley workers’ housing comprised a generalised set typology and therefore raises questions regarding the formation of classification systems based on the perceived actions of the millowners. Thus this thesis argues for a new typological approach which identifies the similarities between examples, underlines patterns of pre-existing domestic architecture and evaluates the role of the occupants in the design and use of these properties.

The research also demonstrates the potential for interior buildings survey to contextualise socio-cultural aspects of domestic life within the wider economic development of the textile industry. Consequently this thesis proposes that far from being bereft of forerunners, as alluded to by Chapman (1974), the construction of workers’ housing in the Derwent Valley relied heavily on local antecedent housing traditions as well as older textile industries. The result is a dynamic array of workers’ houses which responded to, and were influenced by, the millowner, the workforce and established building customs. To contextualise these assertions, the following chapter provides a historical overview of the key developments in the study of workers’ housing. This is followed by the detailed analysis of the four case studies at Cromford, Belper, Milford and Darley Abbey.

## Chapter One

### Literature Review

The aim of this thesis is to investigate the purpose-built industrial housing associated with the first cotton workers' settlements constructed along the Derwent Valley (see figure 1.0; appendix 3). The thesis will consider the external form of the houses, their interior arrangement and the lived experiences of the workers who occupied them. Taken collectively, this research amounts to the investigation of over 300 individual properties across the four sites and therefore represents a considerable body of original research. It is also important to appreciate that whilst the settlements are established in discrete locations along the valley, they developed as a result of the actions of industrialists who were related either by professional partnership, marriage or sometimes both. As such, this thesis considers the implication of housing form and function at both a site level and as a wider part of the Derwent Valley. This chapter will review existing literature and previous scholarly work regarding the study and interpretation of textile workers' housing in the eighteenth and nineteenth centuries and examine the extent to which this has influenced current understanding of the examples from the Derwent Valley. This review will demonstrate the prominence of specific themes, such as industrial/domestic perspectives, typological classification systems and patron/technological-led narratives before highlighting the importance of more recent integrated approaches. It will begin with a historical overview of the English cotton industry, before moving on to the emergence of workers' housing studies and finally looking specifically at more recent research strategies.

Textile workers' housing of the eighteenth and nineteenth centuries has been the focus of scholarly research from a variety of backgrounds, including; engineering, economics, history and archaeology (Johnson and Skempton 1957-7; Smith 1965; King and Timmins 2001; Symonds & Casella 2006; Palmer *et. al* 2012). This has resulted in diverging interests as each discipline has sought to contextualise both the period and housing according to their own agenda. Consequently academic research continues to use an array of approaches, focuses and definitions in the study of workers' housing. This chapter provides a contextualisation of the development of

purpose-built housing in the Derwent Valley itself and a critique of the secondary literature on the textile worker's house of the later historic period. In so doing, it appraises the perceptions of workers' housing in relation to eighteenth century industrial change and demonstrates the importance of considering site-specific historical particularities as a context for research. Although the establishment of the Derwent Valley settlements demands an examination of this context, it is also important to consider how the patterns observed here might be true of the wider corpus of material. The following critique uses a broadly chronological approach in order to reveal the complexities in the subject matter, highlighting the physical diversity apparent in workers' housing and demonstrating the multi-various approaches taken to their study. Emerging from this critique are the research questions which underpin this thesis. These challenge existing overarching accounts of the development of workers' housing and establish the need for an interdisciplinary methodology, which will use a detailed archaeological analysis, to ascertain the form, style, use and development of these properties.

### **Historical background**

It is helpful to begin with an overview of the cotton industry in the eighteenth and nineteenth centuries as a means of contextualising the Derwent Valley within a wider framework of reference. The swift transformation of the British cotton industry from domestic economy to factory system over a period of approximately 150 years has generated significant interest amongst academics (Markus 1993, 262; Giles 2004, 75). Chapman (1965, 526-528) has argued that no other branch of textile manufacture gives the same scope of insight nor reveals so extensively the relationship between production and organisational change. It is not surprising, therefore, that the cotton industry has often been regarded as an innovative form of manufacture undertaken by pioneering individuals (Fitton and Wadsworth 1958; Chapman 1976; Menuge 1993; Rose 1996; Orange 2008).

The first reliable accounts of British cotton manufacture date to the late sixteenth-century when cotton thread was used as a weft to a linen warp (Hill 1970, 4-8; Chapman 1972, 11). With the increase of international trade and colonial

opportunities, British fashion experienced an unprecedented demand for lighter printable cotton and calico fabrics (Lemire 1991, 3&5; Rose 1996, 7). This placed the newer cotton industry in conflict with more traditional textile manufacturers, such as woollen or silk producers, who were alarmed by additional competition (Hill 1970, 5; Lemire 1991, 23). Consequently, whilst the cotton industry of the seventeenth and early eighteenth century was characterised by a series of trade embargos, the market interest in the fabric ensured its continued manufacture (Hill 1970, 10; Lemire 1991, 31 & 32).

Initial models of cotton production mirrored the arrangements of more traditional forms of textile manufacture and conformed to a pattern of seasonal work by agricultural householders (Clark 1999, 289). Gradually in the eighteenth century this formalised under a system of middlemen or merchants using waged labourers (Giles 1993, 27; Markus 1993, 284). In some cases this meant a degree of organisation in allocating housing for workers closer to textile masters (Nevell 2008, 34-25). This ensured, as Champion (2005, 195) notes, a continued and strong tie between textile manufacture and domestic life. Consequently within this early period of cotton production the term ‘workers’ housing’ could be loosely applied to a variety of housing forms and styles and simply relate to properties occupied by textile worker(s) rather than ones architecturally designed for textile production (Caffyn 1986, 5-8).

The descriptions of the eighteenth century cotton industry by Chapman (1967, 526) and Jenkins (1994, xvi) exemplify the widely-held belief that this branch of textile manufacture was the leading innovator. However, as Falconer (1993, 7) and Markus (1993, 264) state, the success of cotton production rested on a series of earlier incremental improvements made across a range of industries, including woollen, silk and hosiery. Inventions, such as Kay’s Flying Shuttle (1733), Strutt’s Derby Rib Machine (1759) and Hargreaves’ Spinning Jenny (c.1764) sought to streamline production, increase output and improve efficiency (Markus 1993, 263-265). The appropriation and adaptation of these inventions to cotton production began by the 1760s as entrepreneurs sought to improve the outputs of what was becoming a highly lucrative area of manufacture. As a result, a series of cotton-specific inventions entered the marketplace, including the world-renowned spinning machine, the Water

Frame (1769) by Richard Arkwright. This and other cotton spinning machines, such as Crompton's Mule (c.1775), represented both genuine technological innovation and adaptation of earlier mechanical achievements (Markus 1993, 265).

In 1771 the newly completed Cromford Mill, in the Derwent Valley, became the world's first waterpowered cotton-spinning mill (Menuge 1993, 38). Today the mill forms a distinctive part of the established historiography of the cotton industry and is regarded as a marker for the point at which cotton could be mechanically processed from raw to yarn under one building complex (Chapman 1974, 527). However, the use of specific mill examples and technologies to narrate the wider history of the cotton industry has drawn criticism from academics who suggest that this over-emphasises the significance of mechanical inventions and results in inadequate generalisations (Cohen 1994, 24-25). This illustrates a long standing concern amongst scholars, such as Berg (1985), Grenville (2004) and Nevell (2008), that a dominant focus on technology reduces the scope of academic investigation from a complex examination of the socio-cultural aspects of industrialisation to the simpler analysis of the specific economic circumstances of production. As this chapter will go on to demonstrate, this has had important consequences for the research agenda of workers' housing and for the research framework of this thesis.

The national spread and use of Arkwright's Water Frame during the 1770s and 1780s had an important influence on the demographic composition of the labouring workforce. In designing a spinning frame which could be operated by unskilled workers, Arkwright had effectively reduced manufacturing overheads by enabling millowners to employ children and adult female operatives at a cheaper rate than the adult male counterparts (Fitton and Wadsworth 1958, 65 & 78; Winstanley 1996, 124). The move to a mill arrangement, argues Cohen (1994, 290-307), destabilised traditional employment patterns in three ways. Firstly the mechanisation process required fewer labourers to undertake the work; secondly, employees lost a degree of independent working by submitting to a factory system; and thirdly, female employees now worked in mixed gender arrangements outside the family unit. The introduction of millwork brought the later eighteenth century cotton industry periods of volatile instability as workers, fearing for their livelihoods and family morality,



wrecked machinery and rioted (Fitton and Wadsworth 1958, 79). Arkwright himself sought protection in the wake of clashes in 1779 by subscribing an army of local men to come to his aid should Cromford Mill be threatened (Fitton and Wadsworth 1958, 43). The factory system therefore brought tremendous socio-cultural changes to large swathes of the working population.

The technological inventions which mechanised eighteenth century cotton manufacture, did not extend to weaving processes. As a result, cotton yarn was still transformed into cloth using hand-operated machines driven by highly-skilled weavers working within their own homes. However, with the escalating scale of mechanised cotton production, a shortage of experienced weavers was rapidly identified. Chapman (1972, 60) has argued that this situation spurred early cotton millowners into relocating existing weavers from dispersed locations to purpose-built housing adjacent to their mill complexes. The motivation behind this move remains disputed. Chapman (1972, 24) and Cohen (1994, 293) have both suggested that this process should be considered part of the new factory system in that it brought another section of the workforce under a high degree of surveillance and control. This has been rejected by Jones (1994, 242) who suggests that the movement of weavers closer to the mills more accurately reflected a commercial need for increased productivity in-line with other processes. In other words, moving weavers close to the mill complex was an innovative means to streamline the process in the absence of an additional technological invention. More recently, Nevell (2008, 35) has sought to reconcile these differing interpretations. He argues that the growth of purpose-built weavers' housing in the later eighteenth century was both a reaction to the sheer scale of contemporary cotton manufacture and the desire to regulate a dispersed workforce with a more centralised management structure (Nevell 2008, 35). Within the Derwent Valley, this raises interesting questions in regards to the calculated introduction of purpose-built industrial accommodation from the mid-1770s onwards. Of particular interest is the introduction of regimented housing forms and the extent to which patrons were looking to use these to establish new systems of employment or worker-management as their industrial complexes grew.

By the 1780s, a picture emerges of a dynamic and highly structured cotton industry operating out of a series of rural and semi-rural mill complexes (Markus 1993, 265). Nevertheless, the introduction and use of steam-power in the 1780s and 1790s swiftly brought a significant change to the composition of cotton manufacture. Without the need for suitable watercourses other production factors could be considered, such as the cost of raw materials, and industrialists shifted north to cheaper areas of the country (Smith 1965, 27). This meant that the close of the eighteenth century also marked a diminished interest in the Derwent Valley, as resources were transferred elsewhere. Arkwright himself is understood to have owned the first steam-power cotton mill in Manchester in 1782 (Nevell 2008, 83). Additionally, the performance capacity of steam-power facilitated new technological innovations (Chapman 1972, 22). The 1780s and 1790s witnessed the introduction of high-capacity spinning machines to outperform the Water Frame and the invention of steam-powered weaving apparatus (Markus 1993, 267). This meant that by the 1820s the entire cotton manufacturing process, from raw material to finish cloth, could occur from a single site complex (Calladine and Fricker 1993, 39; Markus 1993, 285; Palmer *et. al.* 2012, 191). This removal of any textile process from the household sphere resulted in a new form of workers' housing, the domestic-only urban dwelling (Nevell 2011, 594). It is this type of terraced house, subsequently studied in its own right and often associated with negative terms such as 'slum', which has formed the most enduring architectural legacy of the later phases of the cotton industry (Nevell 2011, 600).

This historical account of the transformation of the cotton industry, from small-scale domestic trade to large-scale factory system, is intended to provide a context for the development of the Derwent Valley in the eighteenth century. In doing so, the account raises three key themes which are also pertinent to the more specific study of workers' housing in this thesis. Firstly, it is evident that success of the cotton industry is most frequently measured against the output of technological innovation. This has resulted in an investigative agenda that prioritises the original and new over the traditional and continuous. The implications of this are particularly significant within the cotton industry as the comparative infancy of the manufacturing process often reinforces the impression that the associated houses lacked any antecedent tradition. The second theme is the presence of simultaneous and competing historical narratives. The

disparities between regional and national accounts of the cotton industry have proven particularly difficult to reconcile. This has resulted in polarised academic debate at either a macro or micro level. The manufacturing success of the Derwent Valley occupied a relatively restricted chronology within the overall development of the national cotton industry. This has meant that the presence of multiple narratives has proven particularly difficult as the valley cannot be easily compared with other sites or fitted into more generalised narratives. Finally, and most significantly to the study of workers' housing, is the recognition that the lives of the workforce have not always been regarded as a valid element of research agendas. Consequently workers' housing is frequently considered to reflect only a minor part of the overall cotton industry.

This type of thematic bias, as outlined above, is reflected in the documentation for the international UNESCO inscription of the Derwent Valley. Thus, whilst the limitations of these themes have been acknowledged and challenged by historical archaeologists in relation to broader heritage and industrial discourse, it remains the case that much of the scholarly interest relating to the Derwent Valley mills still subscribes to a more restricted understanding of 'industrialisation'.

### **The study of workers' housing**

An investigation into the study of workers' housing is a difficult undertaking. Today it is unthinkable that these properties would not constitute a key element in the analysis of industrialisation. Yet, as Timmins (2000, 21) notes, it is only relatively recently that scholarly interest has consistently stepped beyond the factory floor to consider the lives of the workers. The gradual inclusion of the workforce in historic narratives reflects a wider transformation of academic research, as a greater emphasis is placed on understanding socio-cultural transformations from beyond a 'top-down' perspective (Campion 2005, 195-6; Orange 2008, 83-84). The following section outlines the development of workers' housing studies and reveals the sometimes uneasy juxtaposition of domesticity within the industrial setting.

## The perception of workers' housing

Curiosity in workers' housing is longstanding. The earliest accounts date from the late eighteenth century, as the fashion for genteel travel across Britain gained momentum. Specific to the Derwent Valley these descriptions were written shortly after the construction of the houses as social commentators, such as Bray (writing in 1778) and Viscount Torrington (writing c.1781), made specific journeys to visit these first industrial communities. Early analysis of workers' housing often constituted a comment on their physical condition and an examination of their societal impact. Nevell (2011, 595) has argued that a similar approach continues today, reflecting a more general trend identified by Orange (2008, 83), who has highlighted a pattern in industrial heritage of descriptive recording to facilitate characterising narratives.

The contemporary recording of workers' housing has proved significant in shaping popular perceptions. Although many of the late eighteenth century accounts commented on the acceptability of workers' housing, by the mid nineteenth century at the height of intense urbanisation, the quality of accommodation became a point of communal anxiety (Timmins 2000, 21-22). It is from this later period that the most enduring accounts of workers' housing were formed. A surge in literature, such as the semi-biographical memoirs of Robert Blincoe (written c.1828), government reports (exemplified in the extract below) and novels by Dickens, Gaskell and Trollope, inescapably brought the subject of 'industrialisation' directly into the homes of polite society (Newman and Newman 2008, 182).

*“It is a mess of filth- no drainage-  
the horse road unpaved, and nearly  
a foot deep in mud, together with  
stagnant water; houses generally  
crowded with men and women  
work[ing] together indiscriminately”  
(Bradford Sanitary Committee 1945,  
6).*

From these accounts, Jackson *et. al.* (2010, 37) make the important point that subsequent public outcry regarding the state of the working classes reflected self-preservation as much as humanitarian concern. Political unrest on the Continent generated a genuine fear that continued distain for industrialisation would unify the workforce and destabilise British social order (Newman and Newman 2008, 181-182). As a result, and faced with a potential threat of social upheaval, Timmins (2000, 21) argues that nineteenth century society introspectively re-examined the direction of industrial change. Stemming from a philosophical belief that the happiness of the 'common man' arose from traditional divine ordering, the process of industrialisation was interpreted as a fundamental break from that tradition. Furthermore, industrial components, including workers' housing, were then interpreted as a morally corrupting and unnatural perversion of urban society and domestic life (Caffyn 1986, 82; Rodger, 1989, 1-2; Timmins 2005, 67). All too frequently workers' housing was occupied in multiple household or family configurations, which did not conform to the model ideal of a patriarchal-led unit (Collier 1964, 33 & 39; Beresford 1971, 105; Gauldie 1974, 62).

Newman and Newman (2008, 182) argue that the perception of industrial housing as both unnatural and inadequate has ultimately prejudiced all subsequent scholarship on the subject. They suggest that negative stereotyping has encouraged an investigative agenda which categorises each known example of workers' housing as either 'slum' or exceptional, with the latter being only a minor proportion of the architectural resource (Newman and Newman 2008, 183). Nevell (2011, 595) has also raised this concern and has expressed alarm for the way in which research has become over-dependant on vast generalisations relating to the state of workers' housing. These issues are central to the research agenda of this thesis and are returned to later in the chapter. During the latter part of the twentieth century, authors such as Muthesius (1982, ix & 58), Newman and Newman (2008, 182 & 186) and Nevell (2011, 595) highlighted the negative impact of such assumptions on programmes of architectural investigation and conservation. They argue that there is a clear link between such perceptions and the reluctance to prioritise the study, preservation and designation of these buildings. Consequently, very few have statutory protection. Newman and Newman (2008, 186) have identified this at both householder-level, as owners seek to

modernise their properties, as well during large-scale twentieth-century regeneration schemes. The latter has proved particularly contentious as a heritage issue, not least because the location of many urban nineteenth century workers' housing now falls in areas of twentieth-century prime real estate (Palmer and Neaverson 1998, 145; Newman and Newman's 2008, 183).

Whilst Newman and Newman (2008, 183) question whether economic imperative has been prioritised over heritage concern, Bulmer-Thomas (1975, 85) has persuasively argued that the demolition of workers' housing may have been the result of consumer choice and not just commercial pressure. Writing at the height of post-war regeneration, Bulmer-Thomas (1975, 85) notes that the original proposal to demolish North Street, Cromford (Chapter Three), was made not in light of real estate value but because there had been insufficient interest in living within these old properties. A similar ambivalence to workers' housing also appears to have occurred at Belper (Chapter Four) and Milford (Chapter Five);

*"...[the landlord] couldn't give them away in the 1970s... no one wanted old workers' cottages"* (local resident's reflection on the houses 2013).

The indifference showed to Derwent Valley workers' housing by the mid-twentieth century resonated with an almost universal opinion that industrial accommodation had become incompatible with modern living arrangements (Newman and Newman 2008, 185). This stance is particularly interesting as houses which were heralded as being of good quality in the eighteenth century, such as the Derwent Valley properties, were evidently included in this perception (Bulmer-Thomas 1975, 85). Newman and Newman (2008, 186) have argued that central to this assumption was the mid-twentieth century view that all old properties were inherently of poor quality because they were constructed by profiteering industrialists rather than occupants. As a result the perception that the quality of workers' housing was pitiful has endured (Campion 2005, 197). The social and economic legacy of this interpretation is most clearest

stated in the stance of the controversial *Housing Market Renewal Pathfinders Programme 2002-2011*, in which the Government and poverty charities worked to demolish designated areas of terrace housing to rejuvenate urban centres (Newman and Newman *ibid.*). This was despite serious objection from resident communities, politicians and heritage professionals. Thus this marks a continuation of a trend, as identified by Caffyn (1986, 1), which assumes that workers' houses were constructed simply as a functional solution to the changing needs of industry.

The lack of scholarly interest in workers' housing was mirrored in the investigative agendas set by emerging industrial heritage groups of the mid twentieth-century. Whilst these bodies operated differently to academic institutions and attracted more localised adult-education members, the worker's house similarly had little place within their remit. Crucially, although the composition of these groups was enthusiastic, they had limited resources and operated using an incomplete theoretical framework (Tarlow 2007, 5; Symonds and Casella 2006, 144). This meant that their efforts were often smaller-scale projects selected according to industrial heritage survival rates and post-war regeneration initiatives (Symonds and Casella 2006, 144). After the demolition of Euston railway station in 1961, there was a strong unity amongst industrial heritage group members that limited resources should be used to preserve the iconic over the ordinary (Buchanan 2000, 20-22). Workers' housing, with a reputation for the mundane, lost out in favour of iconic mill buildings and pivotal technological innovations which epitomised the eighteenth century cotton industry (Timmins 1996, 29). The workers were viewed as a social problem of industrialisation rather than an example of human achievement (Giles 2004, 75). It neither housed new machinery nor seemed to offer any positive validation of the industrialising process. Amplified by its physical separation from the mill complex, workers' housing was not expected to offer much insight and accordingly remained, generally, under investigated.

The direction of twentieth century industrial heritage and archaeology research has been framed by these early investigative strands. Palmer and Neaverson (1998, 4) and Tarlow (2007, 4-6) have both emphasised the role of deep-rooted assertions in structuring the study of industrialisation. In recording the dates of key industrial

inventions, a nationwide narrative has been constructed which reads as a manufacturing history focused on technological change rather than the social ramifications of industrialisation. Tarlow (2007, 2) suggests that the dominance of this technology-led approach remains today. This is evident within the Derwent Valley as it is no coincidence that technological invention was one of the key justifications for the application to UNESCO status. Indeed the development of the cotton industry in the Derwent Valley is seen in light of specific inventions, from the installation of the Water Frame at Cromford Mill to the subsequent engineering feats undertaken by millowners Strutt and Evans (Chapters Four to Six).

This section has therefore reviewed the historiographical trends in approaches to workers' housing, within industrial archaeology. The literature reveals a strong trend for describing workers' housing as being inadequate, morally degrading and unimaginative to study. It is evident that this type of industrial building has not featured heavily within industrial archaeology's research. However, workers' housing *has* provoked interest from a very different group of researchers wishing to examine and explain such houses in the wider context of domestic building typologies. As the following section will demonstrate, this category of typological recording has formed the majority of research into workers' housing and has proved invaluable in understanding their diversity, use and meaning.

#### Development of typological assessment

This chapter will now turn attention to the role and development of typological assessment in shaping the study of workers' housing. Such classifications underpin almost every investigative strategy from nineteenth century records to more recent programmes of research. Crucially the construction of definable 'types' enables a sizable data-set to be made more manageable, facilitate cross-comparison and permit subsequent evaluation. Within the study of workers' housing, typological assessment is not without its problems. The analysis of these properties closely follows the established historical narrative, meaning that urban-centric patterns of investigation dominate the classification (Nevell 2011, 596). A related problem is the way in which investigation is generally confined to the first phase of property usage, with the



subsequent development or ‘biography’ of housing featuring very little within the established literature. This has meant that ‘type’ is determined by original design, regardless of subsequent adaptations or changes in room function (Palmer *et. al.* 2012, 213). As a result typological classification becomes an enquiry into the principles of design behind construction, or the house ‘as built’ rather than ‘as used’. This is particularly significant when considering the development of industrialisation and the movement of manufacturing processes from the worker’s house into the mill. Finally, the continued prioritisation of innovative technological concerns has encouraged a typological sequencing centred on usage associated with named industrialists. This, as Palmer *et. al.* (2012, 230) asserts, is of particular note when considering the definition of ‘type’ in early examples of industrial workers’ housing, such as within the Derwent Valley. Consequently not all forms of workers’ housing are adequately represented within typological assessments, leading to the construction of a generalised, yet distinctively regional and discrete, dataset.

The initial approach to classifying workers’ housing most frequently starts by differentiating between ‘workshop dwellings’ (housing with industrial and domestic uses) and ‘industrial dwellings’ (domestic only properties) (Palmer *et. al.* 2012, 213). It is a division that satisfies technology-led investigative agendas, as outlined above, and resonates with academic discourse concerned with the process of industrial change. This has enabled authors, such as Campion (2004, 104), Giles (2004, 80) and Timmins (2004, 90), to establish a tangible link between these houses, the workforce and manufacturing within the textile industry. Scholarly interest in the ‘workshop dwelling’ type has given rise to extensive sub-categorisations, as determined by the location of the workshop area. Whilst Timmins (2005, 68) argues that these spatial arrangements reflected the demands of a particular manufacturing process, the explanation has been most frequently pared down to a simple utilitarian rationale that the houses operated as a “functional industrial-cum-domestic unit” (Smith 1971, 251). Although this is an obvious oversimplification of the complexities operating within workers’ housing, it is this basic interpretation that continues to shape subsequent analysis and interpretation.

Often considered the hallmark of workers' housing, the upper-floor or garret type of 'workshop dwelling' is externally recognisable through the presence of enlarged windows running along the working area (figure 1.1). The form is found throughout England, with notable concentrations in the East Midlands, Lancashire, Cheshire and Yorkshire. It was often constructed in rows, used by hosiery, woollen, worsted, silk and cotton textile industries and appeared in both urban and rural contexts (Palmer *et al.* 2012, 213). That said, within the Derwent Valley only North Street at Cromford (Chapter Three) conforms to this type and its presence has often been cited, by Joyce (2011, pers. comm.), as a new type of house on the premise of its association with the cotton industry. This type of accommodation facilitated outworking employment in the period prior to the widespread adoption of powerloom weaving and therefore, coincided with a stage of intense technological innovation (Caffyn 1986, 9; Campion 2005, 198). As a result it has attracted considerable attention from academics looking to describe the manner of worker engagement with industrial development (Campion 2004, 101 & 116). Or as Palmer (2004, 7) notes, these houses provoke the interest of scholars looking to assess the way in which workers were managed and commercial transactions occurred. This is evident in Chapman's (1967 and 1976) accounts of the British hosiery industry of the East Midlands, which provides a sustained programme of research through a series of re-examinations. There has been considerable interest in this type of property as authors note differences between examples in style, internal arrangement, size, heating arrangements and sanitation measures (Campion 2004, 101). Yet the significance behind the variation is infrequently discussed unless in relation to changing industrial practices (Timmins 2005, 69).

To a greater extent the above description of the garret house could be applied to another notable form of 'workshop dwelling', the ground-floor workshop type (figure 1.2). Although less numerous, the form is instantly recognisable through the presence of enlarged windows running along the front or rear of the workshop, often with additional windows along the side elevation (Timmins 2005, 68-69). As this required extra expenditure over the garret type, there has been a traditional assertion, amongst early industrial researchers, that the ground-floor workshop represented a functional compromise and was therefore less favourable to the manufacturer/patron owner (Timmins 2005, 68). As a result the majority of research has sought to explain the

manufacturing advantages in subscribing to a ground-floor plan-form. These, Timmins (2005, 68) has suggested, centre on the everyday functionality of ground-floor workshop arrangements, which also preserved the domestic sphere of the household separately. Whilst this interpretation appears to offer more of an interest in the lived experience of the occupants, scholarly examination of this sub-category of housing has remained primary focused on its industrial usage.

With fewer surviving examples and less obvious external definition, investigation into cellar workshop housing, has until recently, been less dynamic (figure 1.3) (Timmins 2005, 71). Where the majority of scholarly focus has centred on industrial usage, the cellar workshop type appears to contradict the established criteria for ‘workshop dwellings’ - good lighting! Most frequently this type of property relied upon a window and associated light-well to illuminate the workspace rather than the elongated windows associated with the garret and ground floor models. This, combined with the strong propensity to associate subterranean arrangements with poverty and immorality, has ensured the demolition of many cellar workshop dwellings and resulted in a fractious relationship with academic investigation (Timmins 2004, 100; Newman and Newman 2008, 182-184). Even recently, Alcock’s (2005) investigation of the urban poor in Warwickshire creates a housing hierarchy that sees cellar forms of workers’ housing firmly placed at the bottom of the pile. Whilst describing the housing within his study as “the smallest examples of industrial housing recorded” the continuation of the sentence to include “*though* they did not include either single-room or cellar dwellings”, makes clear his disdain for the form (Alcock 2005, 49; emphasis current author’s own). Yet, as Timmins (1996, 22-23) has demonstrated, these cellar workspaces had a critical role in textile production in that the humid conditions were ideal for weaving finer grades of linen and cotton thread. However, outworking in this capacity had a short shelf-life as weaving innovations made this form redundant by the early nineteenth century (Rose 1986, 113; Timmins 2004, 96). Consequently cellar workshops were often reused as additional accommodation, demonstrated at Styal, Cheshire, in a move often accompanied by decreasing living standards for the occupants (figure 1.4) (Rose 1986, 113). And it is likely that this type of action accounted for at least a proportion of the rhetoric defaming this vastly diverse sub-category of workers’ housing.

The above descriptions have demonstrated that the typological classification of ‘workshop dwellings’ relies upon identifiable external architectural features. The approach has resulted in the formation of a classification system which is biased in recognising purpose-built, over informal arrangements. This is limiting for a number of reasons. Principally, it restricts the typological sequence to the specific period of industrial development when outworking became more formally recognised within housing architecture (Nevell 2008, 34; Palmer *et. al.* 2012, 213). This means that earlier and/or informal working arrangements are often excluded from the assessment and classification process (Campion 2004, 101 & 104). Additionally this emphasis on the architectural form of the workspace prioritises the significance of the industrial usage of the property over the lived experiences of the occupants (Timmins 1996, 29). This is particularly significant as many authors, such as Chapman (1971), Burnett (1978) and Caffyn (1986) have highlighted that even small datasets demonstrate considerable variation in living arrangements. Timmins (2004, 100), in particular, has been very vocal to suggest that since the industrial and domestic parts of the house were often situated cheek-by-jowl, any meaningful typology must take both into consideration.

Typological classifications of ‘industrial dwellings’ are fraught with similar problems as Palmer *et. al.* (2012, 222) have noted. Chiefly amongst these is the presumption that the quality and form of ‘industrial dwellings’ were driven only by capitalist economics. As ‘industrial dwellings’ frequently housed unskilled labourers adjacent to manufacturing sites, Griffin (1977, 276) has argued that the status of the worker meant that the patron did not need to invest as much in the properties as there was no commercial incentive to do so. Thus, against a backdrop of patron-led and technological-led research agendas, these houses appear to add very little to the established historical narrative. This has pushed the study of ‘industrial dwellings’ in two directions. First, as the houses have been seen as a lesser part of the manufacturing process, there has been little interest in the properties beyond a cursory functional explanation. This has led to fewer systematic studies which focus on this classification of housing (Palmer *et. al.* (2012, 213). Second, the presumption that these properties were constructed with the minimum-spend, especially when constructed by speculative builders, has directed scholarly interest towards the

inferior examples (Alcock 2005, 58). This has created a circular argument which, as Newman and Newman (2008, 187) suggest, compounds and reinforces the perception of workers' housing being almost universally of poor quality and unsanitary.

Within England, the most frequently observed arrangement of an 'industrial dwelling' is the 'through-house' (figure 1.5). Often comprising a single room on each floor, side staircase and exterior access, this type of accommodation was regularly constructed in rows and appeared in numerous rural and urban industrial contexts. In the Derwent Valley the through-house was extensively used at all four of the sites discussed within this thesis. The frequency of its construction has resulted in sustained academic interest, including the regional studies by Caffyn (1986), Timmins (2000) and Jackson *et. al.* (2010), who note the overwhelming variety between examples. Yet whilst this variation is understood to reflect the regionality of industrialisation, investigation is based on external stylistic differences rather than a detailed examination of the interior and lived experiences facing the occupants. In this regard the house type has been habitually overlooked.

Despite the ubiquity of the through-house, perhaps the most cited example of an 'industrial dwelling' within popular literature is the back-to-back type (figure 1.6). This category of house remains synonymous with inferior living standards as it facilitated the housing of a high number of workers on a small area of land (Griffin's 1977, 276). Its development is often understood to have been borne out of necessity during a period of mass urbanisation and industrial expansion within a capitalist environment (Crouch 2000, 52). This assessment of back-to-back dwellings began early, as part of the nineteenth century moral evaluation of industrial workers and continued as part of industrial heritage agendas undertaken by early scholars, such as Beresford (1971). Here, research remained focused predominately on the social and sanitary problems associated with the housing form. Back-to-backs, argued Beresford (1971, 96), represented an "unnatural" building type without rural or urban predecessors. Yet two early examples from Belper (Chapter Four), perhaps demonstrate a forerunner of the form in a rural context (Smith 1965, 71; Chapman 1976, 127). Equally important is Alcock's (2005, 58) more recent study which

suggests that patterns of back-to-backs and court arrangements show similarities with more traditional forms of medieval building type.

The above typology of ‘industrial dwellings’ reveals similar problems to the classification of ‘workshop dwellings’, in that an emphasis on physical form has resulted in a narrowing of the typological sequence. Whilst these ‘industrial dwellings’ do not have an integrated workshop, their construction is determined as functional response to industrial needs at the behest of the patron/millowner. Crucially this removes the occupants from the narrative as their input in housing design was understood as negligible. Consequently the occupants and the domestic arrangement have been, until recently, less frequently considered (Palmer 2004, 16). This top-down approach to typological assessment has reduced an examination of housing forms to a simple equation between industrial processes, technological innovation and patron expenditure (Ralston and Hunter 1999, 7). It is these factors, which Falconer (1993, 5), Palmer and Neaverson (1998, 43) and Nevell (2011, 594) have argued ultimately determines the study and typological assessment of workers’ housing. Whilst the industrial and technological development has been considered already in this chapter, the role of the patron has yet to be fully discussed. Therefore, the subsequent section will consider the patron in determining the form and quality of workers’ housing and analysis the extent to which their presumed character has shaped typological interpretation.

#### Visibility of the patron

Understanding the actions of a patron relies upon being able to identify their input in relation to specific examples of workers’ housing. Resultantly, scholarly interest has inclined towards historic documentation to illuminate particular case studies against the building or business accounts, such as the work of Timmins (2000). However, in some instances where extensive records survive, a historical interest in the patron has overshadowed actual investigation of the buildings themselves (Timmins 2000, 21). Within the Derwent Valley the primary historical focus on the millowners as “distinctive characters”, described by Chapman (1972, 35), has smothered interest in the tangible fabric of the houses. This has led to a classification of properties

according to assumptions made about the personality and interests of the millowner. As discussed above, this has already been examined in relation to economic motivation; however, many academics, including Palmer (2004, 9) and Timmins (2005, 67) have stressed the moral or benevolent motivating factors which led to the production of certain housing forms.

Interest in the character of industrialists is longstanding and is distinguishable within the nineteenth century perceptions of workers' housing, such as in the publication by James Silk Buckingham (1849). The mid-nineteenth century witnessed renewed interest in pre-industrial practices and early workers' communities, including Cromford (Chapter Three) and Belper (Chapter Four), as a remedy to the social ills of industrialisation (Buckingham 1849, 183; Rogers 1989, 4 & 44-45). Seen as model examples of respectability, Jackson *et. al.* (2010, 9-36) has argued that these early houses became a blue-print for later philanthropic concerns, such as Saltaire. Thus at these sites, the patrons were understood to be motivated by ideological influences which extended beyond economic/industrial consideration (Tarlow 2007, 73). As such, these settlements form part of a wider academic discourse in which the personal disposition of the industrialist becomes central in understanding the subsequent material culture and built-form (Tarlow 2003, 300; Tomaso *et. al.* 2006, 20-21). This builds on the points raised by Caffyn (1986, 82) and Aspin (1995, 325) that by the mid-nineteenth century workers' housing became a crucial element in the pursuit of improving the working classes. This is exemplified in the development of Deans Mill, Bolton, in 1851 which was described by the *Illustrated London News* "as a well organised community never equalled in the Utopia of philosophy" (Aspin 1995, 336). Yet these later settlements amounted to a full scale spiritual, physical and physiological transformation of working-class life. Consequently they became increasingly dissociated from the later eighteenth century examples they sought to emulate as little attention was paid to the form of the early industrial houses themselves (Rose 1986, 103).

Rose (1986, 102) has suggested that the process, as outlined above, should be regarded as the practice of mythologizing early industrial settlements according to word-of-mouth reputations. It is an emphatic approach which has exerted a profound

hold within the Derwent Valley. The actions of the Derwent Valley millowners have often derived from anecdotal reminiscences of descendents before being subsequently adopted as undisputed fact. This practice remains evident even today, as Jackson *et al.*'s (2010, 9) own comparison of the Derwent Valley houses relies heavily upon second-hand data taken from an essentially gilded historical account. All too readily, it seems, authors obtain housing descriptions as the basis of complicated extrapolations, without using first hand observation. Untangling the myth from actual building fabric has become an essential component in typological investigation and analysis. As Van Bueren (2006, 133 & 148) has stated recently, the compelling ideology of a benevolent agenda makes it easy to idealise the interpretation rather than objectively examine the evidence. Accordingly, just as there has been a tendency to positively select workers' housing associated with technological inventions, there has been an equally strong agenda which opts to investigate housing associated with benevolent industrialists, as is the case of the Derwent Valley. This has resulted in an inclination to overstate the quality of the housing on the basis of millowner reputation (Timmins 2000, 21-22 & 35).

This section has raised a number of important points in relation to the study of workers' housing, by clearly demonstrating that these properties are a complex and diverse classification of buildings. It is evident that their heterogenic nature has inspired a variety of investigative agendas as a result of nineteenth century perceptions and approaches taken by twentieth century industrial heritage groups. These foundations have facilitated the construction of an accepted typological sequence, which retains a strong preference towards purpose-built, unusual and commercially-active examples associated with identifiable industrialists. This typological agenda continues to shape workers' housing studies and has contributed to an enforced polarisation of housing categories between those considered to be the worse and best examples (Newman and Newman 2008, 183 & 190). As a result, the patron is often considered in an equally polarised capacity, operating either as an overtly fiscal industrialist or philanthropic gentleman. Whilst this approach has been noted to distort the perceived quality of housing in examples where the status of the millowner has become particularly mythologized, such as the Derwent Valley, it has remained prevalent within research agendas.



## **Working towards an integrated approach**

This chapter has so far examined the perceptions associated with workers' housing and the development of a typological sequence which underpins their study. However, workers' housing also needs to be considered in relation to more recent analysis coinciding with the maturity of historical archaeology as a sub-discipline. The most important development has been the acceptance that the architectural-form of these properties represents an expression of material culture (Nevell 2011, 593-594). Consequently it has been considered as such within investigative frameworks. This has culminated in new directions for scholarly interest, which has begun to investigate *why* and *how* workers' housing developed, rather than *when* and *by whom* (Palmer 2000, 59; Morriss 2000, 14). The more integrated approaches, created by this academic assertion, have generated an appreciation that workers' housing represented an ongoing interaction between occupants, building, patron and society (Tarlow 2007, 73). This has revealed a more complicated picture than previously considered, with a greater degree of recognised variation between known examples (Nevell 2008b, 97).

Simultaneously, exploration strategies for workers' housing were changing. Resurgence in urban regeneration schemes, such as the *Housing Market Renewal Pathfinders Programme 2002-2011*, resulted in hitherto neglected evidence such as excavation contexts, becoming more prominent within research agendas (Nevell (2008b, 97). However, whilst this increased interest in workers' housing generally, it initially did not result in a wider breadth of investigation. As a result, researchers had a more refined, rather than redefined, typological sequence. Yet, the increased frequency of recorded examples and use of more specific classifications facilitated research agendas which operated on a greater scale. Scholars, such as Caffyn (1986), started to consider the regional impact of workers' housing in order to examine the economic and social circumstances of these buildings (Symonds and Casella 2006, 151). Caffyn's (1986) seminal gazetteer of Yorkshire workers' housing judged the evolution of design as a reflection of local, regional and national societal change (Morris 1994, 573). Her work, therefore, considered the fluidity of architectural usage, rather than set typological classifications, and mirrored broader academic

changes which sought to highlight the longevity of industrial transformation (Berg 1985, 189; Palmer and Neaverson 1998, 4-5; Mellor 2005, 8).

Against this changing background of investigative approaches, the international emergence of historical archaeology has facilitated several strong, but distinctive, research agendas (Symonds and Casella 2006, 146). Within England, the aforementioned established typological assessment broadened into an investigation of spatial configurations, as the meanings behind architectural choices were examined. One of the early influential examples was the work undertaken by Campion (1996), who considered the relationship between interior arrangement and exterior architectural design. Through careful observation of frame-knitters housing at Windles Square, Nottinghamshire, Campion (1996, 848-852) examined the disparity between the use of these properties as manufacturing units and domestic accommodation. His conclusion that the workshops were designed to be spatially dominant within the plan-forms, highlighted the disruption and intrusion of manufacturing processes on the domestic experiences of weavers' families (Campion 1996, 858). Furthermore, by interpreting this as a deliberate imposition on the part of the patron, Campion (*ibid*) suggested that the arrangement was designed to emphasise the transition of manufacturing power from the head of the household to an externally-based employer. The calculating nature of this act becomes all the more apparent when contrasted against the quintessential domestic exterior with own front door, garden and outbuildings (Campion 1996, 858). As a result, Campion's (1996) approach reveals the conflict in the form of workers' housing and hints at the control held by the patrons in determining the conditions under which their workers lived. His approach underlined a growing interest in the relationship between patron and occupants and the exploitative nature of industrial practice.

Timmins' (2004, 96) research into the Lancashire textile industries, has also examined the spatial arrangement of workers' housing against the daily experiences facing their occupants. His findings resonate with Campion's (1996) earlier assertion that the workshop was deliberately designed to encroach upon the domestic areas of the house. However, whilst this was likely to have caused daily disruption for the family, it also facilitated a greater degree of separation between the domestic and industrial

elements of the household. Timmins (2004, 96-97) views this as an unintended outcome, meaning that the greater degree of privacy afforded by the arrangement represented a fortuitous consequence of a patron's actions rather than the result of a dialogue between the owner and occupants. This assertion places the emphasis for housing design on the patron and argues that the occupant-workers were largely voiceless in influencing the physicality of their environment. Yet, as Timmins' (2005, 75) more recent work has demonstrated, the extent to which a patron was able to influence the design of housing, and therefore living standards facing the occupants, remains a complex debate. His research into Lancashire housing revealed that the form of properties represented an amalgamation between new industrial designs asserted by the patron and pre-existing building traditions (Timmins 2005, 67 & 70). This meant that the patron was not operating autonomously but within governed conventions conforming to social expectations and accepted practices. Ultimately, however, Champion's (1996) and Timmins' (2004 & 2005) investigations into the daily lives of workers are largely influenced and dominated by a patron-led research agenda.

Within North American approaches to historical archaeology, interest in the 'household' and 'domesticity' has formed an integral part of the sub-discipline of *household archaeology* (King 2001, 295). The impact of this in the study of workers' housing has been extensive, resulting in an alternative methodological trajectory and a stronger emphasis in making the actions of the occupants, rather than the patrons, visible for analysis. Two of the most influential scholars to pioneer such an approach are Beaudry and Mrozowski (1988), whose work on the Boott Cotton Mills has become a much-consulted example for archaeologists studying industrial housing (Symonds and Casella 2006, 147). Their work focuses on elements of material culture, collated from archaeological deposits, rather than typological assessment and emphasises the longevity of occupant-activity within houses (Beaudry 1996, 112; King 2001, 297). Using a biographical format, their work connects the buildings with their associated users over a sustained period of socio-economic transformation (Hicks and Horning 2006, 281). As a result, smaller changes in the material assemblage are analysed for clues which may convey a user's economic prosperity, social identity and class relations (Cochran and Beaudry 2006, 203).

Despite having very different methodological approaches to the study of workers' housing, the examples outlined above all consider the role of contemporary societal and economic ideologies in the development of industrialisation. In looking to determine the mechanisms behind this interaction, scholarly interest has increasingly centred on industrial settlements with historically understood philanthropic or benevolent origins (Jackson *et. al.* 2010, 9). Collectively these form a well-known set of 'paternalistic' communities, such as the Cromford, New Lanark, Saltaire, Bourneville and New Earswick. As noted in the previous section, their presence has inspired the traditionally-held view that a proportion of financially-astute industrialists invested in favourable living conditions in return for healthier, loyal and more productive workforces (Chapman 1976, 112; Rose 1986, 122). More recently, this has been re-qualified as a complex expression of employer/employees interactions and the limited extent to which *both* patrons and workers were able to manipulate the development of industrial settlements (Tarlow 2003, 303; Dalglish 2003, 8; Jackson *et. al.* 2010, 13).

As scholarly interest in the ideological agendas behind the construction of industrial settlements has grown, there has been increasing emphasis to contextualise this with ongoing archaeological debate into the role of industrial capitalism (McGuire 2006, 135). However, as these theoretical perspectives have gained momentum, scholars have also shown a growing concern that such investigation has marginalised genuine research into philanthropic gestures. Tarlow (2003, 303) has argued that a predominant focus on capitalist explanations for the construction of workers' settlements has predicated subsequent research. In particular she suggests that other patronly agendas, such as a serious commitment to the social and moral improvement of the working-poor, have been obscured as a result (Tarlow *ibid.*). It is a concern shared by Jackson *et. al.* (2010, 9-10). Their research into housing at Saltaire has concluded that expenditure in high-quality accommodation, combined with the cost of additional community amenities, had the serious potential to destabilise the economic success of the Salt family. As a result they argue that the commissioning of such work could only have been motivated by genuine benevolence (Jackson *et. al.* (2010, 11). Yet, there remains an underlining unease in the methodological approach used by Jackson *et. al.* (2010). Specifically their strong historical contextualisation raises

questions as to whether their subsequent interpretations are adversely affected by the aforementioned issue of mythologizing the patron.

The interaction between industrial capitalism and patron philosophy has been discussed in detail by Ford (2011, 745). His research into settlements associated with copper-extraction in Vermont, has revealed that there was no systematic application of ideological models amongst patrons seemingly subscribing to similar theoretical perspectives. As a result, the daily conditions facing workers were actually determined by a complex combination of external factors as well as the actions of individual employers. This meant that there could be significant variations between workers' housing, community arrangements and financial provisions (Ford 2011, 745-727). This latter point is particularly relevant to the study of the Derwent Valley as differences regarding the individual ideological position and business practices of each millowner, have never been fully explored. Yet it is precisely the type of investigation which is needed in order to substantiate or refute the popular assertion made by Rt. Hon Chris Smith MP (cited in Jackson *et. al.* 2010, 9), that industrial patrons had a shared philosophical intention which resulted in a single manifestation of a 'philanthropic community'.

The expanding use of theoretical perspectives in the investigation of workers' housing has inspired a more diverse scale of survey. This, suggests Hughes (2010, 197) and Whitehead and Casella (2010, 178), reflects the increasing array of methodological traditions available to archaeologists as they work at both macro- and micro- levels. The regional approaches made by Palmer and Neaverson (2003), Newman and Newman (2008), Hughes (2010, 2004) and Nevell (2011), offer a fully contextualised interpretation of the construction, use and significance of workers' housing within wider industrial landscapes. To this might be added the proliferation of regional and industrial specific studies published under English Heritage's Informed Conservation agenda. As a result, 'housing' is not separated from current theoretical discourse relating to industrialisation, but is valued as a fundamental component in its construction. Hughes' (2010, 197) seminal work into workers' housing associated with the copper industries of Wales, demonstrates how landscape-level research can be achieved. By considering the settlements as a series of networked sites, he is able

to offer a platform through which to examine the complex relationships between emerging class attitudes and worker identity. As a result, his approach highlights the need to address wider socio-cultural agendas in order to determine the motivations behind site-specific responses (Hughes 2010, 214-216).

At the other end of the scale, Casella and Croucher's (2010) micro-scale investigation provides an in-depth account of daily family life at the small industrial holding of Alderley Edge, Cheshire. Their meticulous single-site approach facilitates an exploration of an extremely personal narrative, as the experiences facing the occupants of two houses are recorded and analysed (Casella and Croucher 2010, 1). By focusing on twentieth century industry, Casella and Croucher (2010) have been able to incorporate oral history accounts of former inhabitants alongside more traditional archaeological methodologies, such as excavation. As a result their interpretations are shaped by the active contributions of occupants as they construct their own narrative using recovered material artefacts.

This chapter has established that research into workers' housing has had a wide and varied history, spanning a number of academic disciplines over a considerable timeframe. As a result, it has become evident that such studies are most effective when the researcher subscribes to a multi-disciplinary investigative framework. Work undertaken by Palmer and Neaverson (2005, 7) provides a model example of how this approach facilitates a completely integrated interpretation. Their research of workers' housing within the south-west textile industries views the properties in context to both wider industrial changes and contemporary social constructs. Crucially, Palmer and Neaverson (2005) firmly analyse these houses beyond a passive historic narrative to give an engaging socio-cultural account which addresses their complex nature. Today their approach has become a recognised standard adopted amongst many industrial scholars, including Nevell (2011) and has informed the methodology of this thesis (Chapter Two).

### **Research questions**

The aim of this thesis is to investigate purpose-built workers' housing in the Derwent Valley by considering these properties against wider academic debate into the

creation of industrial settlements, the lived experiences of occupant-workers and the emergence of new power-dynamics and identities. As such, it is evident that over the last thirty years, the study of workers' housing has become more theoretically-nuanced as industrial and historical archaeologies have investigated the transformation of workers' communities. This has meant that the approaches used by researchers have considerably raised the profile of workers' housing, so that they are now considered a fundamental part of Industrialisation. This chapter has sought to provide a framework for such research by examining the application of current interpretative models in order to realise a series of research questions which may be used to underpin the investigation into the Derwent Valley.

It is evident that the most recent analysis of workers' housing engages with the properties as socio-cultural expressions of industrial change. However, it is also apparent that this is influenced by more antecedent research traditions, which foster the continued use of typological classifications alongside an intense scrutiny of the patrons' intentions. As a result, industrial housing remains depicted as a unilinear evolutionary process, from benevolent factory colonies of the late eighteenth century, through the descent into slum housing, to the emergence of paternalistic settlements by the mid-to-late nineteenth century. Jackson *et. al's* (2010, 9) assertion, that the starting point for 'philanthropic paternalism' can be attributed to the construction of the Derwent Valley settlements, remains a widely-held belief. Yet this premise is based on two untested assumptions. Firstly, that early millowners *were* benevolent; and secondly, that they shared similar ideological principles and intentions to industrialists approximately one hundred years later.

By using a buildings-led approach to highlight the diversity of housing examples across the four settlements within the Derwent Valley, the complexity of contributing factors behind their construction emerges. As such, this approach considers the introduction of cotton manufacture alongside pre-existing traditions and expectations. Therefore it resonates with the view that Industrialisation was a cumulative process gathering momentum from a series of antecedent traditions, rather than a sudden isolated development (Tarlow 2007, 172). Consequently, a broader investigative remit is required, which examines established conventions, such as the influence of local

architectural styles, professional workmanship and the expectations of existing textile workers. However, it is vital that these are considered alongside factors that would have only become apparent as cotton manufacture came to the Derwent Valley. Of special interest is the effect of using housing to entice skilled workers to the mills, the practice of out-working within the properties (including informal arrangements not reflected in the architectural form) and the emergence of new household arrangements at a time of socio-cultural and economic transformation. Therefore, 'tradition' needs to be considered against 'innovation' in order to provide a fully contextualised account of the origins, form and function of these houses.

A similarly broad investigative remit is required when considering the lived experiences of the occupants. Although comment on the zonation of domestic and industrial activities is routinely included in the examination of workers' housing, this is rarely expanded into a discussion of the impact made by these on daily living arrangements. Rather than comment on the 'type' or origin of the houses, archaeologists such as Beaudry and Casella, have prioritised a focus on householder subsistence. This methodology emphasises the apparent interactions between building-users and architecture by examining the changes made during occupation. It also facilitates a comparative approach as choices; such as build-quality, fixtures/fittings and provision of amenities, can be examined against changing manufacturing practices and prevailing socio-cultural circumstances. When this sits alongside spatial analysis, it provides a greater insight into the differences between intended and actual use of workers' houses within a given period of significant industrial development. Consequently issues such as industrial privacy arrangements, working relations and household activities can be examined from the perspective of *both* the patron and the occupants, to provide a more complete examination.

Finally, there has been a focus on the hierarchical structuring of workers' housing, the emergence of worker-identities and the wider social implications of industrialisation. Whilst these are most frequently discussed in relation to the paternalistic communities of the later nineteenth century, it is evident that they are equally relevant to the investigation of the earlier Derwent Valley settlements. As a result, this study examines the mechanisms for both domestic social-arrangements and industrial



power-dynamics in order to comment on the emerging settlement structures and identities of different building-users. This takes into account many of the aspects of workers' housing already discussed; such as, build-quality, use of architectural detailing and spatial arrangements as well as the retention of older traditions alongside the adoption of new manufacturing practices. Consequently this approach redefines the relationship between house, patron and occupants by considering all parts of the surviving building fabric against the intended audiences. This means that the approach also offers a more complete study of workers' housing by considering the interaction at household and settlement levels; against the ever-changing wider economic and socio-cultural backdrop of the British cotton industry.

### **Thesis Outline**

**Chapter Two** determines the methodological approach used in the research of this thesis. It indicates the form of buildings survey used in the data-collection process, sources available for consultation and considers the problems inherent in this methodology.

**Chapters Three-Six** present an investigation of each of the four locations of workers' housing. The thesis starts with the earliest site, Cromford, and follows the course of the River Derwent to examine Belper, Milford and Darley Abbey. This approach offers both a geographical and chronological perspective to the development of the Derwent Valley cotton industry.

**Chapter Three** focuses on the case-study of Cromford. The chapter will introduce the first examples of purpose-built cotton workers' housing in the valley and will begin with an assessment of the earliest row, North Street (c.1776). This chapter will examine the construction of the houses in relation to the growing confidence in cotton textiles and the expansion of production capacities. As the first settlement along the Derwent, this chapter will investigate the role of existing building traditions in the formation of new industrial communities. Lastly, the chapter will also consider daily life in the houses, the use of surveillance in early cotton weaving and the exploitation of Cromford in supporting the ambitions of its highly successful patron, Sir Richard Arkwright.

**Chapter Four** investigates Belper, the first of two settlements owned by Jedediah Strutt. This chapter considers the construction of a cotton workers' community at the site of an already-established settlement. It also reconsiders the role of a patron's individuality alongside manufacturing processes in determining the form of workers' housing and looks at the contrasts and similarities in the approaches taken by Strutt and Arkwright. Finally, Chapter Four examines the hierarchical structuring of early settlements against the evolution of workers' housing forms to determine whether the lived experiences facing occupants were correlated with their employment and social status.

**Chapter Five** investigates Milford, the second of two settlements owned by Jedediah Strutt. This chapter investigates the construction of workers' housing over two opposite hillsides, with no distinctive central core. This chapter will examine the variety of housing forms in relation to their physical setting and again reconsider the role of the patron in determining the influences acting on the design of workers' housing. Additionally it looks at the contrasts and similarities in the approaches taken by the Strutts at their two settlement sites. Lastly this chapter will also consider daily life in the houses, and in particular the division of bedroom space, to determine whether the lived experiences facing occupants at the turn of the century were vastly different from Belper.

**Chapter Six** investigates Darley Abbey, the final case-study offered in this thesis and the last cotton workers' settlement to be established in the Derwent Valley. This chapter considers the design of workers' housing built by patrons who were not experienced textile manufacturers but businessmen who bought the patent rights to establish their own venture. As a result this chapter examines the construction of industrial accommodation as the cotton industry grew in confidence and the manufacturing model was used outside the original partnership. Finally, Chapter Six looks at the continuing influence from other textile industries and the importance of nearby established textile centres in the development of the housing architecture and the subsequent lived experiences of occupants.

**Chapter Seven** provides a discussion to this thesis and highlights the presence of three main themes in examining workers' housing within the Derwent Valley. It identifies the importance of an integrated approach in which archaeological analysis of the building fabric is considered alongside available document sources. Therefore this chapter returns to key areas raised in Chapters One and Two and begins to address some of the apparent tensions in the explanation of these houses and the lived experiences of occupants in the late eighteenth and early nineteenth century.

**Chapter Eight** provides a conclusion to this thesis, focusing around the three main themes in examining workers' housing within the Derwent Valley. It also offers a critical appraisal of the methodology and highlights areas for potential future research.

## **Chapter Two**

### **Methodology**

Chapter Two discusses the methodology applied in this thesis. In particular, this study is heavily influenced by the work of Palmer and Neaverson (2005), Hughes (2010) and Nevell (2011) who use buildings-led approaches to interpret workers' housing as an active socio-cultural element of the industrial landscape. Their work focuses on the surviving fabric of these properties to consider the human experience of occupation and therefore uses the houses themselves as a starting point to engage with 'lived experiences'. However, as Chapter One has shown, document-led and artefact-led approaches have also been favoured by archaeologists, especially when standing remains of housing are minimal or surviving document sources are particularly informative. This methodological diversity to the study of workers' housing has been considered by Hughes (2010, 197), who asserts that the choice of approach is largely defined by case-study selection and influenced by the breadth of scale, accessibility and type of evidence encountered. Consequently, with regards to the case studies considered in this thesis, it is the presence of significant surviving building fabric which drives the methodological remit, resulting in a buildings-led approach. This chapter will now examine the development of the methodology used in this thesis and begins by looking at the process of site selection.

The aim of this thesis is to record and analyse workers' housing connected to the earliest and largest cotton spinning mills in the Derwent Valley at Cromford, Belper, Milford and Darley Abbey. These four sites have been specifically highlighted within the UNESCO site inscription as being of particular archaeological and historical significance. Although not exclusively the only early workers' housing within the Derwent Valley, these four sites represent a distinctive category of workers' accommodation. They are part of the first complexes undertaking mechanised cotton spinning and were constructed sequentially along the valley by patrons who were associated commercially and personally with each-other. These sites are of comparable sizes and character comprising nucleated settlements associated with a single mill site. Thus whilst these four sites offer four individual case-studies,

collectively they also reveal a networked and integrated industrial landscape as described by Hughes (2010). The current author asserts that the study of workers' housing within the Derwent Valley requires a comparative as well as individual analysis of each site.

The strengths of investigating a network of connected textile communities within the Derwent Valley comes at the expense of in-depth analysis of each individual case study. As such the current author does not attempt the type of micro-scale investigation undertaken by Beaudry (1996) or Casella and Croucher (2010). There are a number of reasons for this, principally the documentary sources available for the Derwent Valley are not sufficient to enable in-depth analysis of households or illuminate individual tenants and occupants, this point will be expanded on later. Additionally, the current author argues that given the pace of evolution within cotton manufacture and workforce organisation at the end of the eighteenth century and beginning of the nineteenth century, there is a need to understand housing across all four sites in order to contextualise the form and function of examples within each of the case studies. Finally, existing analysis into workers' housing within the Derwent Valley by Lindsay (1960), Smith (1965), Chapman (1976), Menuge (1993) and Peers (2010) has focused on either individual rows or selective housing types. This scholarly analysis has focused on the most distinctive examples such as North Street, Cromford; Long Row, Belper; and East and West Terrace, Milford. In contrast the holistic approach proposed for this thesis will avoid any potential research bias inherent when selecting only a subsample of available housing types to study.

The selection of only the most innovative forms of housing is also apparent in the Royal Commission records for the Derwent Valley. During the 1980s after listing designation was confirmed, isolated examples of housing types were recorded by the Royal Commission to use as illustrated case studies (see List of Document Sources). The investigation resulted in a basic-level survey of four houses across North Street and The Hill (Cromford), Hopping Hill and Foundry Lane (Milford). These records comprised a brief historical account of the development of the Derbyshire cotton industry, a précis of the house form, an outline plan and a small array of interior and exterior photographs. Thus they gave more detail regarding the character of the

properties than earlier scholarly accounts. However, these houses were selected by local historians who were themselves influenced by traditional research agendas, as outlined above and in Chapter One. Thus this type of investigation represents a continuation of traditional historical research frameworks with a selective agenda to highlight the perceived uniqueness of the Derwent Valley and its industrial housing.

Both the Royal Commission accounts and aforementioned scholarly publications form the basis for the established typology of workers' housing as published in the UNESCO inscription documentation. Yet there are obvious tensions with this. Three of the greatest problems are the sample size used, the deliberate focus on the more unusual forms of housing and the tendency to classify housing either by differences in the exterior architectural style or plan-form, without considering the relationship between the two. Arguably these biases have directly developed from patron and technological-led research frameworks alongside a desire from local and regional scholars to express the historical significance of the Derwent Valley region. Fundamentally, the premise that these settlements represent part of the "*cradle of the new factory system*" (Chambers 1972, 4), has anchored the workers' houses to a precise geographical and chronological framework of reference, which has then been adopted within the established narrative of Industrialisation. This has had a profound impact on the understanding of workers' housing nationally as authors such as Leech (1981), Caffyn (1986), Jackson *et. al* (2010) and Nevell (2011) have all referred to these examples to contextulise their own regional studies. However, as Chapters Three-Six of this thesis demonstrate, it is evident that these typologies represent an over-generalised account of the housing within the Derwent Valley and therefore only correspond to a small proportion of surviving building fabric and housing arrangements.

In using a buildings-led approach this thesis overcomes the bias of existing typological structures. Specifically, due to unprecedented access to the exterior and interior of these houses, this thesis proposes a linked typological sequence which takes into consideration both the plan-form and elevation together. This means that the characteristics in individual houses are no longer studied in isolation but contextulised and examined within the wider settlement setting (Appendix 1). Such an

approach accords with the interpretation of the Derwent Valley as a network of sites and highlights that whilst these were separately run mill complexes, their shared use of technologies, close proximity and complex patron arrangements, meant that there was significant overlap.

This thesis draws on two major sources of evidence: surviving building fabric and documentation. The level of survey undertaken was defined by the research questions established at the beginning of this thesis (see Chapter One), and broadly follows the Level 3 criteria as described by English Heritage guides to good recording practice (English Heritage 2006, 13-14). This approach places emphasis on producing an analytical record of the surviving building fabric with particular focus on the buildings origins, development and use. This was accompanied by a detailed on-site photographic survey and where applicable coupled with use of existing listed building designation descriptions (Department for Culture, Media and Sport 2010). There are a number of reasons for taking this approach. Firstly, as the four case studies within the research area comprises approximately 400 individual workers' houses, a photographic survey represented an effective way of deriving a manageable dataset within the scope of the thesis. Secondly, as this study aims to identify the spatial arrangements and lived experiences associated with these houses, this form of survey ensured that the details of individual properties were recorded in a format that facilitated comparison between examples.

As the houses are in private ownership, the overall extent of the chosen survey method was highly dependent on the level of permissible access. Initial assessments revealed that homeowners were sceptical in the archaeological value of interior survey and were fearful of any subsequent regulatory intervention after participation. It was recognised from the outset that a targeted publicity campaign was required to promote understanding of the project and its aims to overcome homeowner reservations. The type and scale of the publicity campaign was tailored to the individual settlements. For example at Cromford, where the community has had a greater level of previous heritage engagement, it was identified that a series of community talks and lectures would achieve the required access. However, elsewhere it became apparent that a more varied approach would be required, comprising talks,

securing press coverage, targeted leaflet campaigns and finally door to door engagement. To facilitate participation it was especially important that the survey strategy could be easily accommodated by householders and was not perceived as intrusive. A photographic survey, therefore, could be undertaken in as little as 15 minutes and organised according to individual homeowners requirements.

Where possible all rooms, cellars and roof spaces were photographed. Particular attention was paid to fixtures and fittings, including; fireplaces, doors, flooring, ceilings, windows, wall-scars, and built-in cupboards. Unfortunately, access during survey was sometimes limited to the ground floor or reception rooms as a proportion of householders felt that that upper floors and bedroom spaces were too private to be viewed and photographed. Despite this, approximately 37 percent of all properties were accessed and recorded during the course of 2011-2013. This dataset was supplemented by additional photographs and floor plans that had been commissioned as part of housing sale particulars, planning consents or building regulations and dated back to the late 1990s. By using these, the dataset was significantly widened to include examples where access in 2011-2013 had not been possible. These records also added to the biographies of houses as subsequent owners altered, redecorated and in some instances removed the original fixtures and fittings.

One unexpected aspect of this methodological approach was a large geographic variation in the level of positive householder response. Despite following a standard multi-media approach to influence, inform and gain consent to access properties the resident uptake at Cromford and Belper far exceeded that attained in Milford and particularly Darley Abbey. The current author suggests that this reflects the way in which national engagement with the history of the Derwent Valley has had a Cromford-centric approach through the prominence of Sir Richard Arkwright in literature and wider education programmes as well as the activities of the Cromford-based Arkwright Society. This disparity in the volume of data gained from each site has directly influenced the level of analysis possible within this thesis and is reflected in the amount of words dedicated to each case-study. Hence, whilst the current author has made every attempt not to allow this unavoidable survey bias to be reflected in



conclusions across sites there is inherently more focus given over to the analysis of housing at Cromford and Belper.

The buildings-led approach used in this thesis follows the methodology applied by Palmer and Neaverson (2005) and thereby integrates documentary analysis alongside surviving building fabric. This thesis draws on a number of documentary sources, which are either directly related to the construction of the housing or otherwise relevant to the development of the workers' communities (see List of Document Sources). The extent of these records varies between case studies but includes; account books, maps, newspaper articles, diaries and correspondence. Consequently whilst a number of documents survived for Belper and Milford, very few existed for Darley Abbey and almost nothing for Cromford. The preservation and availability of these sources is also variable and a proportion have been misplaced or removed from public access during the later twentieth century. In particular, certain documents relating to Belper and Milford, which were consulted by Fitton and Wadsworth in 1958 and provided detailed information regarding daily living arrangements, are amongst those now unavailable to the current author. Additionally, efforts to trace these records revealed the survival of further uncatalogued documentation, which was found in private ownership and therefore also not currently accessible to researchers.

Several building accounts, which detail the construction of housing at Belper, Milford and Darley Abbey, provide a significant insight into the character of house-building between 1794 and 1811 (see List of Document Sources). These meticulous accounts are arranged in date order and list the cost of materials used, the phasing of construction and even name the builders employed. Unfortunately, however, these accounts only list the construction of specific housing schemes and it is likely that they represent a small surviving sample of a once larger set of financial books. In addition, as these accounts provide a record of the transactions made during the construction of workers' housing, rather than the occupation of the properties, they do not contain details of the subsequent inhabitants. This follows a general trend in documentation relating to the Derwent Valley, in which individual occupants are only listed in exceptional circumstances. Rental accounts have not survived for this period and the earliest complete occupants list dates from the 1840s as part of the Tithe Map

and Apportions (with the exception of Darley Abbey), made approximately 60 years after the construction of the properties. Consequently, this thesis offers an analysis of the composite lived experiences of multiple occupants, and it does not seek to specifically illustrate individual householders and family arrangements, as scholars Whitehead and Casella (2010) or Jenkins (2013) have done.

In the initial stages of historic research, the current author had sought out additional documentation which, although focused on the mill buildings and business practises, had the potential to mention housing constructed by patrons. In particular, following from the success of Palmer and Neaverson (2005) in using insurance policies to illuminate detail of workers' housing, it was hoped that similar may be possible. Unfortunately, despite numerous fire insurance policies taken out by patrons in the Derwent Valley, these were limited to the mill complexes rather than other elements of their estates.

A more revealing component of the documentary sources is the surviving cartographic evidence (see List of Document Sources). Commissioned by the millowners, a series of large-scale maps delineate housing rows, land boundaries and, in some instances, give details regarding the phasing of settlement growth. Collectively, they illustrate the expansion of the four sites from the later 1780s at sequential intervals throughout the nineteenth century. However, using this type of evidence can be problematic when trying to establish the development of workers' housing and industrial settlements. In particular, as these maps were commissioned as a method of estate management, they frequently depicted the overall arrangement of the millowner's assets rather than the detail of individual housing units. As a result, the absence of housing rows on some of the earliest cartographic sources may be the result of an administrative decision that they were too insignificant, instead of an indication that they were yet to be built. Similarly, as individual buildings were constructed they were simply recorded on existing maps without explanation. This means that these cartographic sources are often a composite representation of the estate at any given time and cannot be relied upon to provide secure evidence for building phases. Yet despite these shortcomings, such maps provide invaluable account of the early development of workers' housing in the Derwent Valley.

Chapter Two has discussed the methodological approach taken in this thesis. By using evidence from surviving building fabric and documentary sources, workers' housing across the four sites has been considered in-line with the research questions outlined in Chapter One. This methodology underpins the interpretations made in this thesis and enables the complexities in the design, construction and development of workers' housing to be fully visible and evaluated. Specifically, this building-led approach moves away from the set historical agendas which have supported traditional research frameworks and enables a contextualised appraisal of how occupants negotiated domestic spaces within this particular industrial landscape. Thus it has facilitated a genuine comparison of housing between sites which allows the occupants within these properties to come to the fore. Consequently, whilst this thesis offers new insights into the development of textile workers' housing within the Derwent Valley, it also has implications for the narration of industrial workers' lives nationally and the extent to which these houses offered any sort of model for later philanthropic communities.

## **Chapter Three**

### **Cromford**

This chapter will focus on workers' housing constructed at Cromford in the latter decades of the eighteenth century. Built as part of the first cotton workers' settlement, these properties are the earliest surviving examples within the Derwent Valley and consequently present an interesting first case-study. Many of the themes raised in this chapter have already been explored in Chapter One, such as the construction of purpose-built housing types, the process of industrial change, the visibility of the patron and the emergence of new social structures alongside the lived experiences of occupants. This chapter also outlines the use of Cromford in the established narrative of workers' housing typologies. As this community was without precedent, this chapter examines the form of housing at Cromford relative to examples in other, more established, textile industries in order to investigate the origins of design. Chapter Three also considers the role of patrons in the construction, appearance and perception of these properties, in comparison to the lived experiences of the historically-anonymous occupants. Finally this chapter introduces new avenues of research into the study of the Derwent Valley by moving beyond the exterior of the houses to consider their interior form, domestic privacy arrangements and daily industrial function. Accordingly, Cromford highlights the important contribution careful analysis of early workers' housing can make in the wider investigation of emerging and industrialising communities.

Cromford is situated two miles south of the county town of Matlock at the confluence of the River Derwent with the smaller Bonsall Brook (figure 3.1). The construction of Cromford Mill in 1771 by Richard Arkwright, Jedediah Strutt and Samuel Need, is one of the most cited examples of early industrial change. The strong tradition of interpreting this site as the origins of mechanised textile production has instigated a patron-centric form of research and a focus on identifying those responsible for each technological innovation. Thus, the historical development of Cromford is almost inseparable from the biographical accounts of its famous owners. Whilst this situation has ensured that Cromford remains a famous case-study debated by industrial

historians, it has also removed any imperative to investigate beyond this established agenda. The effect of this in the study of workers' housing has been substantial. All too frequently the character of these properties has been assumed, rather than studied, based on assertions made with regards to the patrons. Therefore, workers' housing at Cromford has always been regarded as a watershed moment, marking dramatic changes to the way in which industrial workers lived in the late eighteenth century.

The workers' settlement at Cromford is situated 300m to the south-west of the mill site and is located on land either side of the main Wirksworth-to-Matlock road. The form of the housing is largely consistent and comprises a series of two and three-storey rows constructed in a localised style using stone taken from the hillside above. Many of the houses are Grade II listed and date to between 1780-1810, with the exception of the earlier North Street properties, which were constructed in 1776 and have a Grade II\* listing. Throughout the nineteenth century Cromford remained a relatively small manufacturing site. The associated settlement escaped the subsequent programmes of modernisation and expansion that characterise many urban textile communities. This has meant that the houses have retained their original features and give an impressive insight into late-eighteenth century building design.

#### *The partnership and early Cromford Mill*

In the mid-eighteenth century, Cromford was little more than a hamlet supporting an already failing lead mining industry (Chapman 1967, 539). Its inhabitants had little experience in textile production and were not directly part of an established out-working system (Cooper 1991, 66). Yet the remoteness of Cromford, away from recognised textile centres, is understood to have offered unique benefits to Arkwright, Need and Strutt as they invested in their new experimental form of cotton production. Three key advantages are often cited. Firstly, with two of its three partners practising non-conformists, Cromford provided a degree of independence away from the urban strongholds of the Anglican textile corporations (Chapman 1967, 529; Cooper 1991, 66). Secondly, the relative inaccessibility of the location gave supplementary protection from acts of patent piracy, something Need and Strutt had already experienced in Derby (Cooper 1991, 66-68). Thirdly, it has also been argued that

Cromford was deliberately selected by Arkwright as an isolated location from which he could reasonably expect to improve his social standing (Chapman 1967, 531; Cooper 1991, 73). As a result, and led by a strong patron-centric research agenda, scholars have sought to identify the architectural style of housing at Cromford as a reflection of Arkwright's lordly ambitions.

This raises interesting questions for the way in which the built-form of workers' housing is analysed. In particular it highlights the extent of an almost 'facadism' approach to the study of Cromford and the enormity of interest in explaining the exterior style without considering either the interior arrangements or the impact of the architectural form on the lived experiences of occupants. This situation also highlights two further assumptions made in regards to the actions of the patron. Firstly that the exterior form directly reflected the character or ambitions of the patron; and secondly, that his interest in workers' housing only extended to the exterior of the properties. As this chapter will go on to discuss, such assumptions require further explanation, especially in light of evidence from the interior arrangements and wider development of Cromford settlement.

The development of Cromford Mill was steady, with the construction of the first mill, Upper Mill, in 1771 and a second mill, Lower Mill, by 1776 (figure 3.2). Both mills survive today and have been considered an essential cornerstone in the sequencing of textile buildings (Chapman 1967, 533; Chapman 1974, 469; Menuge 1993, 38). Yet whilst the earliest phases form a fundamental part of industrial typologies, the later mill and ancillary buildings have not been extensively analysed to the same extent. The use of traditional research agendas, which focus on technological innovation, has resulted in the selective investigation of only those buildings directly involved in housing the new spinning technologies in the 1770s. Understanding the development of Cromford Mill after this point has not been forthcoming to the equivalent degree. Consequently the site, and the valley, are absent from large coordinated industrial heritage publications, such as the RCHME volumes.

This sustained attention on the technological inventions, partnership and personalities of Arkwright, Need and Strutt has also resulted in the reduction of the type of source

materials consulted. This has created a dependency on documentation as a means to identify the personal intentions of the men. As a result, the narrative of Cromford has been condensed into two primary phases, underlined by distinctions in ownership arrangements. The first phase, characterised as the process of site selection and construction in 1771, is understood to have taken place under the direction of the Arkwright-Strutt-Need partnership. The second phase focuses on the period post-1776 when Arkwright is interpreted as the sole patron. This means that the intervening years of 1771-1776 have received little attention, as ownership arrangements cannot be securely corroborated in contemporary documentation. It is unfortunate, therefore, that it is these years which coincided with the initial creation of a workers' community.

*The creation of a workers' community*

Identifying the origins of the workers' community at Cromford is difficult. Contemporary accounts of the construction of Cromford are frustratingly vague and written firmly after the establishment of the workers' housing. These references, such as William Bray's (1778, 74) acknowledgment of "new houses" close to the mill and J.P. Malcolm's (cited in Fitton 1989, 187) record of "comfortable" conditions, reveal very little information regarding the early character of the settlement.

The initial workforce, comprising local women and children, had originally been employed in the lead mining industries and was already accommodated and settled in the landscape (Fitton and Wadsworth 1958, 65). For the partnership, hiring these labourers was a strategic way of having a readily available, economical and convenient workforce. However, whilst unskilled workers could be locally sourced, securing more specialised labour proved difficult and an advertising strategy was undertaken (Chapman 1972, 53; Fitton 1989, 30). The example below demonstrates the urgency with which such workers were required;

*" Cotton Mill, Cromford*

*WANTED immediately...Weavers residing in this  
Neighbourhood, by applying at the Mill, may*

*have good Work. There is Employment at the above Place, for Women, Children, &c. And good Wages” (Derby Mercury 1771).*

In order to attract skilled workers, and especially weavers, to the newly-built and remote Cromford Mill, it is evident that the partnership had to incentivise by providing family employment opportunities and competitive wages. Yet the absence of accommodation in these early advertisements suggests that the weavers either made their own housing arrangements or were close enough to travel. Consequently, the initial form and development of the workers’ community at Cromford does not seem to have been directed by the patrons themselves. Instead a more organic process, based on existing arrangements, is likely to have characterised the earliest years of the workers’ settlement.

#### *The first housing in 1776*

The expansion of the mill complex in 1776 brought considerable changes to Cromford. A switch to the production of calico cloth altered both the scale and composition of the workforce as a greater number of weavers were required to meet the new manufacturing demands (Merrill 1988, 13; Fitton 1989, 50). This, argues Chapman (1967, 156) and Fitton (1989, 187), prompted the construction of the first company-built weavers’ housing along North Street in the same year (figure 3.3). However, the dating of these properties is not secure as the sources cited by these two scholars are now in the possession of a local historian<sup>1</sup> who has declined to make them available for further academic research. The presence of an estate map commissioned in 1777 seems to corroborate the accepted date for North Street as the two completed rows are clearly visible (DRO D1216Z/P2).

However, additions to the map throughout the later eighteenth century mean that it is difficult to precisely determine when the properties were drawn. The same map is referenced in an open letter of 1982 made by Christopher Charlton to Derbyshire County Council, who also outlined the details of a loan made to Arkwright for the purpose of building North Street in 1776 (Appendix 2). Unfortunately it has not been possible to confirm the source of this information with Christopher Charlton and so it



is impossible to validate the claim. Interestingly, Fitton (1989, 183-4) also references a loan made to Arkwright for the same amount but in the context of the hypothetical purchase of Cromford Manor in 1776.

The significance in dating North Street to 1776 lies in the implication that it was constructed as part of a pre-planned coordinated expansion of the mill complex under the sole directorship of Arkwright. As a result, the construction of North Street has been regarded as a definitive moment and one of the first physical manifestations of Arkwright's personal vision for the site (Fitton and Wadsworth 1958, 76, 81 & 99; Hills 1973, 40; Fitton 1989, 39 & 187). This has resulted in a sustained view that the architectural form of the housing was a deliberate statement made by Arkwright to highlight his own, or at least perceived, social status (Cooper 1991, 73). Interpreting the houses as simply a reflection of the patron's intention can be problematic, as noted in Chapter One, as it often fails to take into account the occupants of the houses and their own requirements. This is particularly pertinent to the study of North Street as the intended occupants were skilled workers crucial in the overall success of the business. It is likely, therefore, that they possessed a degree of influence over their own living arrangements (Farey 1811, 21). As a result, a picture is emerging in which the first workers' houses at Cromford fulfilled several functions and that the chosen architectural form was required to meet both occupant and patronly expectations (Fitton 1989, 56).

<sup>1</sup> The holder of these sources is a local historian of some prominence who was involved in the transfer of the documents cited by Fitton and Wadsworth (1958) from Manchester University to the Matlock Records Office in the 1990s/2000s. The current author regrets that additional sources held by this local historian are unavailable to researchers and that the ongoing embargo is likely to remain in place. Based on Chapman's (1967) and Fitton's (1989) reputation for scrupulous research and the early estate map (1777), this thesis also proposes the date of 1776 for the construction of North Street.

### *Expansion of housing in the 1776-1789*

Cromford Mill prospered throughout the 1770s and 1780s and an increasingly large workforce was required to meet production demands. Consequently additional investment in workers' housing was necessary and Arkwright constructed a series of properties in a ribbon development following the line of the main road, The Hill and The Market Place (figure 3.4). These houses were stylistically similar to North Street but lacked the upper floor workshop which characterised the earlier properties (figure 3.5). The positioning of the majority of the houses along The Hill, situated a considerable distance away from the mill site, appears to reflect Arkwright's continuing struggle to purchase suitable land for house-building (Fitton 1989, 182). However, the construction of a small row of houses and inn building around what would become the Market Place in the 1790s, has been used to hypothesise the beginnings of a coordinated settlement by Arkwright (figure 3.6). Despite this, the ultimate pattern of development suggests that throughout the 1770s, and majority of the 1780s, land could only be acquired at a piecemeal rate as holdings became available. Whilst this situation changed on Arkwright's purchase of Cromford Manor in 1789, it provides a timely reminder that the industrialist was not the only influence on the development of the settlement in the late eighteenth century.

In contrast to the construction of North Street, housing along The Hill appears to have been erected in smaller phases over sequential building seasons. This is visible in a series of diagnostic building-breaks between houses as well as smaller architectural differences, such as mullion design. The type of piecemeal construction is likely to have reflected fluctuations in the textile market and a cautious response by Arkwright as a safeguard against financial burden (Fitton and Wadsworth 1958, 246). Unfortunately the exact phasing sequence is difficult to determine and in the absence of contemporary documentation, unlikely to be resolved. Accordingly, housing constructed between 1776 and 1789, after North Street but prior to Arkwright's acquisition of the manorial title, is often overlooked. Fundamentally they do not corroborate the perception that Cromford was a planned settlement for skilled workers, designed according to Arkwright's vision. Accordingly this seemingly disjointed phase of house-building is valued as being less historically significant. The

problems inherent in this archaic viewpoint have been outlined in Chapter One, but it highlights the reality that one of the most famous case-studies in textile history retains such a traditional research agenda.

### *Housing built post-1789*

The 1790s saw a proliferation in house-building with a series of small rows disparately located at The Market Place, The Hill and Water Lane (figure 3.7). Fitton and Wadsworth (1958, 96) have interpreted this development as a coordinated phase, which sought to emphasise Arkwright's social standing after his purchase of Cromford manor in 1789. Their assessment has been extremely influential in subsequent research agendas and forms the core of the UNESCO inscription documents (2001, 46). Yet the houses themselves do not necessarily support the assertion made by Fitton and Wadsworth. A series of intermittent building breaks running along the rows reflects a more staggered process of construction at a piecemeal rate. This suggests that the housing was erected in accordance to manufacturing requirements rather than as part of a synchronised plan. Consequently the housing style, setting and pace of construction reflects a continuation of earlier practices as demonstrated in the 1780s, rather than a new approach. Ultimately this approach remained throughout the nineteenth century as Richard Arkwright's son, Richard Arkwright Junior, embarked on his own house-building projects.

### *Early nineteenth century housing*

After Arkwright's death in 1792, Arkwright junior inherited his father's cotton-spinning businesses (Fitton 1989, 224). As a millowner in his own right, Arkwright junior had ventures in Derbyshire, Staffordshire and Manchester as well as considerable investments on the stock exchange (Fitton 1989, 225). However, by the mid-1790s and throughout the 1800s and 1810s, the instability of continental Europe was becoming increasingly problematic for the continued success of cotton production. As a result, Arkwright junior sold or leased a considerable amount of his father's mill complexes, retaining only Cromford and Masson Mill by 1793 (Fitton 1989, 224). Whilst cotton production at Cromford continued, it was without the same level of investment in infrastructure seen in the preceding decades. In the 1810s,

house-building programmes began again with three rows of two-storey properties situated along The Hill (figure 3.8). Although the style of the properties represented a break from previous forms of housing, the position of the properties on land alongside the main road, and in a series of smaller building phases, suggests that housing was again erected at a piecemeal rate.

At the other end of Cromford village on Water Lane, a small group of eight semi-detached workers' houses were constructed by the 1820s (figure 3.9). These three-storey properties have been interpreted in the UNESCO inscription documentation as housing for overseers, on account of their semi-detached status and presence of larger garden and individual privies. Yet in the absence of documentation it is difficult to prove the occupations of the intended inhabitants. Indeed even the actual date of construction of the houses is also not conclusively determined as the properties share closest stylistic parallels to mid-nineteenth century examples along The Hill.

The above account of the development of workers' housing at Cromford (1776 to the 1820s) highlights the problematic nature of analysing industrial sites with both established narratives and historically prominent patrons. As noted above, the perception that the Derwent Valley was established by innovating millowners has generated an expectation that the workers' settlements should benefit the magnitude of the patron's reputation and associated technological achievements. At Cromford this has resulted in the presentation of the site as a coordinated settlement constructed according to Arkwright's flare and ambition (see UNESCO inscription documentation). Yet the on-site analysis of surviving building fabric as part of this thesis reveals a more disorganised arrangement in which protracted periods of construction characterised the house-building schemes. The confliction between these two accounts is significant not simply because it highlights a more detailed picture of the planning and growth in Cromford settlement, but rather because it clashes with existing discourse which regards this site as the start of new industrial era. Fundamentally, evidence from surviving building fabric challenges the rhetoric issued by Chambers (1972) and Chapman (1976), which asserts that the workers' housing was radically new to reflect the innovative manufacturing processes. As a result, the account presented in this chapter brings to light fundamental tensions in the way in

which the process of industrial change is perceived and serves to highlight the experimental nature of early development at Cromford settlement.

*Archaeological assessment of the surviving workers' housing*

It is evident from the chronological outline offered above, that existing investigation has been governed and constrained by a very traditional research framework. Specifically, a prominent focus on the patron, Arkwright, has ensured that the dominant account portrays Cromford as a planned and coordinated settlement following his own personal vision. Any analysis of the workers' housing, therefore, has been selective in order to verify this interpretation. As a result, current research comprises only a few concise descriptions of exterior elevations and architectural styling, which have then been shoehorned into the established patron-led narrative.

The inadequacies of this situation are noted in the previous section, as well as Chapter One. In stepping beyond the traditionally-held research framework, this thesis reveals discrepancies between the interpretation as derived from documentary sources and those offered in the assessment of surviving building fabric. It highlights a need for a sustained systematic programme of survey and a greater emphasis on archaeological assessment to match the levels of existing documentary enquiry. Fundamentally, in order to calculate the proper significance of the houses, it is necessary to move beyond existing research and undertake a detailed exterior and interior survey of the properties.

The remainder of this chapter is dedicated to primary research through a comprehensive archaeological survey. This allows for the surviving building fabric to be studied in conjunction with documentary evidence and is an essential step in demystifying the mythology surrounding the housing. The process also creates, for the first time, a systematic and accurate dataset encompassing housing from several phases of Cromford's development. Accordingly, this chapter proposes an alternative reading of the workers' housing, which highlights the longevity of building traditions and the continued use of localised architectural styling. Significantly, as a result of unprecedented access, this chapter moves beyond the traditional investigative remit to

consider the interior of the houses and the living standards experienced by the occupants.

### *Exterior descriptions*

The most frequently referenced typological assessment is the scheme outlined in the UNESCO inscription documentation (see Chapter One). This popular approach emphasises the exterior of individual rows of workers' housing in order to selectively present a historiography of the settlement as an element in Arkwright's textile empire. Fundamentally, the categorisation process was determined, not by differences in the exterior form of the properties, but by their date and location within Cromford village. As a result, the disparate setting of much of the industrial housing ensured an artificially inflated number of typological categories and a lack of synthesis in their overall investigation. Consequently, the typological assessment offered in the UNESCO inscription documentation, typifies the patron-led agenda which characterises much of the research into Cromford.

It is probable that the approach taken in the UNESCO inscription documentation was a reaction against earlier typological assessments provided by textile historian, Chapman (1976, 122-123). His functional typology suggested "three basic types" of workers' housing at Cromford; the workshop-dwelling and the accommodation-only dwellings, in either a two or three-storey form. Chapman's (1967, 122) assessment was less concerned about Arkwright's personal influence over the houses and more interested in demonstrating that the exterior forms were an embodiment of established textile traditions. However, typical of many mid-twentieth century agendas in industrial heritage, the categorisation process only offered a brief and generalised impression. As a result Chapman's assessment failed to make a sustained impact on two accounts. Firstly, he failed to consider the domestic elements of these houses. Secondly, by suggesting longevity of housing tradition rather than a patron-led innovation, he alienated those seeking to publicise Arkwright and raise the profile of the Cromford Mill complex.

The typological assessment offered in this thesis forms a reclassification of workers' housing at Cromford and sets out to address some of the criticisms made with regard

to both Chapman's assessment and the UNESCO inscription documentation. Using a detailed archaeological survey of the building fabric this typological review is intended to draw attention to genuine stylistic development and reoccurring patterns within the housing exteriors. It is not intended to be used independently and separately from a discussion of the interior arrangement and so clear links to the plan-form of properties have been made, where appropriate. This means that research can move beyond the façades and begin to investigate the workers' housing as a significant component within the industrial settlement of Cromford. The classification used below is the first part of an overall sequence which continues across all four case studies (see Chapters Four to Six). This is to enable inter-site comparisons of housing forms without confusion or duplication. Clear linkages between housing groups have been established in Appendix 1.

*Group A: workshop-dwelling with mullion windows*

Found exclusively at North Street (Nos. 1-11 and Nos.14-28), *Group A* houses are three-storey, gritstone-built row properties; comprising, an off-centre doorway, bipartite mullion windows to the ground and first floors and a quadripartite mullion window to the second floor (see figure 3.5 & figure 3.10). The ground and first floor windows are vertically aligned and set flush within the façade (figure 3.11). This style of fenestration is not dissimilar to numerous local examples throughout the Derbyshire Dales, Amber Valley and North East Derbyshire regions and is also present at the loomshop attached to Cromford Mill (figure 3.12). The arrangement suggests a considerable investment in order to secure well lit and ventilated interior spaces and was used with a *Group 1* house-plan (figure 3.13).

The elaborate door surround of *Group A* housing has fewer local parallels. The design consists of a substantial stone lintel sat on a small collar-stone, flush stone pilaster door jambs and a simple projecting square base-stone (figure 3.14). Each surround was deliberately set one course above current ground level and gives the impression that the doors were 'floating' (figure 3.15). As a result, the arrangement has been erroneously interpreted as a later addition to the houses, whilst the 'floating' effect has been attributed to unskilled labourers (Joyce 2011, pers. comm.). However,

inspection of the building fabric reveals that it was part of the original design and similar ‘floating’ arrangements are known at the loomshop at Cromford Mill as well as within local villages at Crich, Eyam, Bonsall and Starkholmes (the latter two examples within former framework knitting shops).

*Group A* properties appear to be the earliest elevation form used at Cromford. The style of their construction replicated local agricultural, domestic and industrial traditions. However, it is also evident that the row format drew upon parallels from textile traditions in operation across the East Midlands, Lancashire and Yorkshire regions (Caffyn 1986, 12). Similarly the regularity of the façade, which conformed to general eighteenth century principles of symmetry, was widely used in industrial housing thorough England (Caffyn 1986, 32; Newman & Newman 2008, 186). Within the Derwent Valley settlements considered in this thesis, *Group A* represents the only workshop-dwelling style of elevation. Consequently, this is the only instance of elongated weavers’ windows being incorporated into workers’ housing.

Although *Group A* properties open directly onto the street frontage, their location flanking either side of a private road and situated off the main thoroughfare, afforded them a higher level of seclusion (see figure 3.3). Constructed along a hillside slope, properties along the eastern row are lower than the road surface and open onto a small forecourt area, which was tree-lined in 1841 (figures 3.16 and 3.17). This forecourt arrangement was not replicated on the western row and houses open directly onto the private road (see figure 3.3).

#### *Group B: double-fronted elevation*

*Group B* is an example of an elevation used only once within the workers’ settlement (see figure 3.10). Adjoining *Group A* properties at the terminal of the row, ‘Out of the Blue’, is a distinctive double-fronted three-storey elevation with central doorway and bipartite mullion windows positioned symmetrically on each floor (figure 3.18). The lack of quadripartite mullion window in the upper-floor is an original omission and indicates that the *Group B* elevation was not intended for use as a workshop-dwelling. The Listed Building description (No. 429646) for this house records its use as a manager’s property overseeing the weavers along North Street. Indeed this appears a



likely scenario. *Group B* represents a considerable investment in a single dwelling and has strong stylistic parallels with late eighteenth century rural housing in local villages within the Derbyshire Dales, such as Crich and Starkholmes. Additionally, similar double-fronted managers' houses are also located throughout the East Midlands, Cheshire and Lancashire areas (Caffyn 1986, 45 & 49). *Group B* was used with a *Group 2* house-plan (figure 3.19).

The rear elevation of *Group B* is significantly different from the uniformed façade of the front elevation and requires further analysis. In particular it is evident that the surviving building fabric reveals several phases of alterations and is on a different alignment to the adjacent No. 1 North Street house. Within the rear elevation is a series of ventilation slots at first floor level which appear to be part of the original building scheme (figure 3.20). The presence of these slots is not consistent with cotton weaving processes, which required more humid conditions, nor seen in domestic building traditions of the Derwent Valley. It is however consistent with a hayloft building and suggests that the front and rear elevations of *Group B* may date to different phases and patterns of building usage. Of particular interest is the evidence from the Tithe Map (1841) which includes 'Out of the Blue' in the lot for the former eighteenth century coaching inn, The Cock Inn (today called 'The Old Workshop' and 'No. 45 the Hill'). Given this, it is possible that the rear elevation of *Group B* predates the construction of *Group A* and the front elevation of *Group B* and therefore represents a transformation of a former hayloft into a manager's house.

#### *Group C: accommodation-only with mullion windows*

*Group C* elevations appear along The Hill (Nos. 54-76 even, Nos. 86-94 even, Nos. 93-101 odd, Nos. 100-110 even, Nos. 124-126 even, Nos. 132-136 even, Nos. 142-148 even) and The Market Place (Nos. 35-41 odd). They are stylistically comparable to *Group A* elevations with off-centre doorway, elaborate stone surround and bipartite mullion windows to the ground and first floors (figure 3.21). However, *Group C* elevations lack the quadripartite mullion window to the second floor and have instead a further bipartite mullion window, comparable to the *Group B* elevation (figure 3.22). As a result, these properties lacked the upper-floor workshop area and were

intended as an accommodation-only form of workers' housing. Given the stylistic similarities to *Group A*, it is likely that *Group C* properties were constructed soon after 1776. There are two distinctive sub-categories within *Group C* elevations, according to the presence or absence of a small forecourt area. All *Group C* elevations were used with a *Group 3* house-plan (figure 3.23).

#### *Group C (a)*

Sub-category *Group C (a)* elevations appear at The Hill, Nos. 86-94 and Nos. 100-110 even. *Group C (a)* elevations are set behind a small flagstone forecourt arrangement, which is stepped according to the hillside gradient (see figure 3.22). These have been customised during the course of the twentieth century, meaning that the original form is difficult to detect. It is likely that the original arrangement was capped by a simple coping stone as seen along the eastern row of *Group A* properties at North Street.

#### *Group C (b)*

*Group C (b)* elevations at: The Hill Nos. 54-76 even, Nos. 93-101 odd, Nos. 124-126 even, Nos. 132-136 even, Nos. 142-148 even and The Market Place Nos. 35-41 odd, lacked any forecourt arrangement and opened directly onto the street frontage (see figure 3.5). This reduced the sense of boundary between the public road and private house and therefore removed the seclusion afforded occupants in *Group C (a)* properties. However, the lack of forecourt would have made *Group C (b)* elevations more economical to build and probably explains their more frequent use within Cromford.

#### *Group D: accommodation-only the market place*

*Group D* elevations are understood to have been constructed in the late 1780s-1790s and are specific to The Market Place, Nos. 12-18 even and Nos. 28-36 even (figure 3.24). *Group D* elevations comprise an off-centre doorway and a single sash window to the ground, first and second floors. The windows are vertically aligned with plain stone lintels and sills set flush with the elevation (figure 3.25). *Group D* elevations, therefore, represent a stylistic break from *Groups A-C*. Similar lintels and sills are

noticeable in housing within the Derwent Valley and nationally. Consequently the use of plain lintels represents a common contemporary industrial building tradition. There are two distinctive sub-categories within *Group D* elevations, according to the presence or absence of a small forecourt area. All *Group D* elevations were used with a *Group 3* plan-form (see figure 3.23).

#### *Group D (a)*

Sub-category *Group D (a)* elevations appear at The Market Place, Nos. 28-26 even. *Group D (a)* elevations are set behind a small flagstone forecourt and have a stone wall boundary running the length of the façade (see figure 3.25). Although the houses are highly visible from the Market Place, the presence of this forecourt enhances the segregation between private houses and public market space. The stone boundary wall has been replaced in the twentieth century and so the original form is difficult to detect. It is probable that it was a simple arrangement capped by copping stones, as seen elsewhere within the village.

#### *Group D (b)*

*Group D (b)* elevations appear at The Market Place, Nos. 12-18 even, lacked any forecourt arrangement and opened directly onto the street frontage (see figure 3.7). It is likely that the lack of forecourt arrangement made the properties more economical to construct and an easier form to convert into shops during the nineteenth century.

#### *Group E: accommodation-only two-storey*

Seen as the second generation of workers' housing at Cromford, *Group E* elevations date to the early nineteenth century and are understood to have been constructed by Arkwright's son, Richard Arkwright junior (figure 3.26). Appearing from the 1810s onwards at The Hill, Nos. 73-91 odd, the houses are the only example of two-storey purpose-built workers' accommodation constructed at this time (see figure 3.8). The location of these properties is interesting. Sited between North Street and the earlier *Group C* properties of The Hill, the arrangement suggests that they were built on land only recently made available to Arkwright. *Group E* elevations comprise an off-centre doorway with distinctive reverse-T stone lintels and single sash windows to the

ground and first floors (figure 3.27). The distinctively-shaped lintels denote another new stylistic development in the exterior design of accommodation-only housing at Cromford. *Group E* properties open directly onto the street frontage and were used with a *Group 4* house-plan (figure 3.28).

Within the Derwent Valley, the closest parallel to the *Group E* elevations are the two-storey houses built in Belper along Short Row (*Group H*) in the 1780s (see Appendix 1). It is possible that *Group E* elevations represent a reduced investment in the quality of workers' housing at the turn of the century, as millowners employed a greater number of unskilled labourers and sought to increase their profit margins. Consequently such workers were accommodated into smaller, and therefore, cheaper alternatives to *Group A, C* and *D*. This created a difficulty, felt by many millowners, in balancing the equation between the cost of building housing, the basic needs of their workers, and realistic or affordable rental schemes for all sections of the workforce (Timmins 2000, 35). What is evident in the use of *Group E* elevations in Cromford is that by 1812 this type of property represented just under forty-five percent of available housing within the workers' community (Chapman 1976, 123).

#### *Group F: the semi-detached*

Dating to the early nineteenth century, *Group F* elevations are found only as a small cluster of eight semi-detached houses along Water Lane (figure 3.29). These properties have been interpreted in the UNESCO inscription documentation as accommodation for overseers. Comprising an off-centre door with simple surround (reminiscent of the surround of *Group A*) and a single sash window with segmented arch header to the ground, first and second floors; it is notable that *Group F* elevations have similar proportions to *Group D* (see figure 3.9). Specifically, therefore, it is the semi-detached setting of *Group F*, within large enclosed gardens and individual privies, which has been used as the interpretive basis for their supposedly superior status.

The dating of *Group F* houses is problematic. The closest parallel to the style of door and window surrounds is found in the mid-nineteenth century examples along The Hill, which are clearly outside the scope of this appraisal (figure 3.30). Based on an

investigation of the building fabric, the current author proposes an early-to-mid nineteenth century date for *Group F*, meaning that they are one of the latest phases of housing development considered within this thesis. The *Group F* elevation was used with a *Group 3* plan-form (see figure 3.23).

#### *Discussion of exterior descriptions*

According to differences visible in the exterior form, the above typological assessment identifies six distinct categories of purpose-built workers' housing constructed at Cromford. These categories reveal underlying stylistic influences which originated from other more established branches of textile production. To some extent this has already been discussed by Chapman (1967, 123), who drew comparisons between the scale and regularity of workshop-dwellings at Cromford and those belonging to the Nottingham hosiery industries. However, it is also evident that houses at Cromford, especially *Groups A-C*, incorporated other stylistic traditions, such as housing associated with Yorkshire woollen and worsted production (Caffyn 1986, 5-13). In particular, there is a close stylistic comparison in the form, fenestration and accentuation of the door surround between *Groups A-C* houses at Cromford and loomshops/weavers' housing in the Honley, Cullingworth and Linthwaite areas of West Yorkshire (figure 3.31). This regional comparison between Cromford and the North West of England is especially significant as Arkwright was born in Preston and travelled extensively in Lancashire, West Yorkshire and the Peak District prior to his involvement in the cotton industry (Fitton 1989, 8). It is therefore likely that he was at least familiar with this type of architecture in the landscape.

The presence of earlier regional and stylistic parallels to Cromford is particularly interesting given the prominent assertion amongst scholars, such as Hills (1973, 40) and Cooper (1991, 233-235), that the site represented a new industrial housing tradition. In particular, it raises interesting questions regarding the adoption and adaptation of types of industrial accommodation in new locations without an established history of textile manufacture. Given Need's and Strutt's experience in hosiery markets at Nottingham and Derby, there is an obvious link between the wider East Midlands and North West textile industries and the personal experiences of the

three Cromford patrons before the Arkwright-Strutt-Need partnership. As this chapter will go on to discuss, it is the assertion of the current author that Cromford housing was constructed according to a number of different influencing factors and designs. It was therefore neither truly innovative nor a direct replica of housing traditions seen in other more antecedent textile industries.

Discussions regarding the exterior of workers' housing at Cromford have been most closely linked to the historiography of the patron, Arkwright, and the assertion that he intended to construct Cromford in his own personal vision of a gentrified estate (Joyce 2011 pers. comm.). However, this interpretation is deeply problematic, not least because it is unclear as to whether Arkwright was solely responsible for the development of the first phases of workers' housing. It is possible that a confident Arkwright, with his experience of first Lancashire/Yorkshire and then Nottinghamshire textile industries, constructed these housing after the dissolution of the partnership in the mid-1770s. Yet, it is arguably more plausible, given Need and Strutt's continued financial investment throughout the 1770s, that the form of the properties reflected the composite experiences of all three partners. As noted above, the latter scenario with Need and Strutt's specific experience of hosiery manufacture, evidently accords with the recognisable traits outlined in Chapman's (1967, 123) earlier assessment. Unfortunately, without documentation to clarify the arrangement, there is a continuing ambiguity as to who was ultimately responsible for housing design.

The difficulty in determining patron identity gives rise to a number of additional complexities when examining the exterior form of these houses. Fundamentally, whilst the properties are identifiable as textile workers' accommodation, much of their architectural style is distinctive and seemingly without obvious parallel. One of the most apparent differences is the use of elaborate classical detailing, such as the door surround of *Group A-C* houses along North Street and The Hill (see figures 3.5 and 3.22). Traditionally, these surrounds are understood to have been commissioned by Arkwright as a proclamation of his 'good taste' and local social standing (Cooper 1991, 238; Joyce 2011, pers. comm.). However, by paying closer attention to the phasing of the housing against the expansion of the mill complex and the personal

fortunes of all three patrons it becomes apparent that this interpretation is difficult to sustain. Leaving aside the argument as to who was actually involved in the design of the surround, its usage was limited to the 1770s as a simpler version was introduced with successive building projects in the 1780s. This means that the classical detailing was dropped prior to either Arkwright's manorial acquisitions or lordly title and before Strutt consolidated his business interests in Belper and Milford. Consequently if the surround was intended as a symbol of a patron's social prowess, its use was poorly timed in relation to their greatest fiscal and social achievements.

Of particular importance in understanding the application of classical detailing, is the relationship between the intended occupants of the properties and architectural style. In the mid-1770s, the continued expansion of the mill complex resulted in a greater urgency to secure suitably skilled workers and weavers. This was a difficult undertaking due to the rural location of the works and it is plausible that the surround was one of an array of architectural features, including: row format, individual front doors and yard areas, which were commissioned in order to flatter the occupants' sense of importance and entice them to settle within purpose-built workers' housing. A similar situation was noted by Campion (1996, 858) in his research into the Nottinghamshire weavers where patrons deliberately constructed archetypal workers' housing in order to evoke the imagery of semi-independent artisans and encourage a loyal workforce. Arguably at Cromford similar principles were applied. By capitalising on the occupants' sense of tradition and perceptions of their position within society, Cromford housing functioned not only as an advertisement for the mill but appeared to offer a lifestyle which was favourable to workers' sensibilities. Thus, a classical design could be a reassurance against a new and experimental process of manufacture, help facilitate demographic movement and secure the continued success of Cromford mill.

The presence of similar classical detailing across a number of Derbyshire houses associated with textile production indicates that the Cromford properties were part of a regional building tradition which took its cues from the occupation of the building's owner and/or inhabitants. This raises the possibility that the exterior appearance of Cromford housing may have been more informed by traditional building conventions

and less driven by the need to entice skilled workers to the settlement. Such an interpretation explains the stylistic conflict between polite classical taste and local vernacular techniques seen in the construction of the 1770s door surround. Rather than being designed by professional or notable architects, it appears more likely that workers' housing at Cromford was constructed by local builders relying on their personal experiences and copying a design observed elsewhere.

A development in the style of workers' housing during the 1780s and 1790s, to a more simplistic architectural form, is visible in *Group D* properties (see figure 3.25). Previous interpretations have attributed this transition to the economics of a trade depression in the 1780s. However, it is likely that the situation was more complicated than this and evidence suggests that more than one influence was at work. Specifically, the changing demographics of the workforce, with increased reliance on mill operatives rather than skilled labourers, meant that by the 1780s there was less urgency to entice trained workers to Cromford. Thus the simpler appearance of workers' housing likely represented both an economic downturn and a tailoring of architectural design to suit the status of the occupants. The introduction of the reverse-T lintel in *Group E-F* housing during the 1810s does, nevertheless, complicate this argument (see figure 3.27). Although the social status of the workers remained unchanged, this stylistic development has been interpreted as a deliberate exercise in architectural prestige. In particular it has been linked to the famous architect John Carr (1780-1789), responsible for Buxton Crescent (figure 3.32) and it has been suggested that Arkwright Junior employed his master stonemason (Joyce 2011 pers. comm.). However, no formal link between Carr and Arkwright Junior can be established in the literature and no records survive which identify the builder. Furthermore, the use of the reverse-T lintel is commonplace throughout rural Derbyshire. The evidence therefore suggests that its use was a simple reflection of a regional architectural tradition and the work of local building teams.

Finally, there is a question as to whether the semi-detached houses of *Group F* were indeed intended to accommodate higher-status overseers (see figure 3.9). In contrast with *Group A* and *C* properties, the façade of *Group F* is plain and comparable to similar contemporary properties at Belper and Darley Abbey (see Chapters Four and



Six). This suggests that by the 1820s house-building was informed by a collective cotton-based building tradition developed within the Derwent Valley industrial settlements. It also suggests that the early nineteenth century witnessed increasing expenditure on workers' housing and a change in the measure of quality accommodation. As a result, rather than expressions of classical detailing, emphasis was placed on constructing a more expensive semi-detached arrangement with quality garden space. However, it is arguable as to whether the relatively small number of *Group F* properties represents the fact that there were fewer overseers to be housed or if, perhaps similarly to the Belper and Darley Abbey examples, they represented some sort of limited experiment carried out by the patron (Arkwright Junior).

In order to assess the proper significance of workers' housing at Cromford it is necessary to consider the setting and location of the properties within the settlement. This is a crucial step in establishing the conditions under which accommodation was constructed and to identify the extent to which house-building was strategically planned. Cooper (1991, 238) has argued that the properties were arranged purposefully according to a pre-determined agenda set by Arkwright. However, the disjointed positioning of the subsequent housing rows across the settlement raises problems with this interpretation. Specifically, it highlights the role of existing property and land boundaries in determining the intended house-building scheme and suggests that the expansion of the cotton workers' settlement may have been restricted by factors beyond Arkwright, Strutt or Need's control.

Cartographic evidence cited by Chapman (1967, 156) and Fitton (1989, 187) indicates that the building plots selected for the construction of workers' housing during the 1770s, 1780s and 1790s were substantially restricted by existing property and land boundaries. North Street offers an early case in point. The presence of predetermined boundary arrangements to the north and south of the site resulted in the western row being considerably more squashed in comparison to the eastern row, as visible from the Tithe Map (1841) (figure 3.33). Further complications were created as existing buildings in the north-east corner evidently disrupted the regularity of the proposed new housing row (figure 3.34). In order to construct the intended arrangement architectural fragments of 'Out of the Blue', which originally formed part of The

Cock Inn prior to 1776, were carefully concealed underneath a new façade. This strongly indicates that such building plots were selected according to land availability rather than desirability. It also reveals the degree to which exterior homogeneity was a central part of housing design and the importance placed on achieving uniform façades along North Street, The Hill and The Market Place.

The pattern of using smaller plots of land for house-building continued throughout the 1780s and 1790s and characterised the subsequent development along The Hill and The Market Place (figure 3.35). As such, it was a less efficient and more expensive method of construction and suggests that patterns of land tenure in Cromford during the late eighteenth century were already complex prior to Arkwright's involvement. This is most clearly demonstrated in the staggered construction of several smaller housing rows towards the top of The Hill. Although the main thoroughfare through Cromford, it is difficult to visualise any overall planned strategy in the arrangement of houses, as some appear to have been shoe-horned at odd angles to the road (figure 3.36). Similarly, on closer inspection of housing at The Market Place, it is evident that the seemingly regular arrangement which stands today was actually the result of substantial changes made to the square during the nineteenth century (figure 3.37). Properties belonging to the 1780s and 1790s only account for a small proportion and are sited sporadically in smaller rows. This does not resemble the planned arrangement argued by Joyce (2011, pers. comm.) and suggests that the location of workers' housing in Cromford was always governed by availability of land rather than any designed landscape or set village ideal.

Taken collectively, it is evident that the exterior form of workers' housing at Cromford presents a more complex picture than the accepted portrayal of the settlement as a millowner's manorial estate suggests. The setting of the properties strongly indicates that house-building was opportunistic in development and that those responsible for construction did not have the ability to purchase large plots of suitable land in a single location. However, at the same time, there is considerable evidence to suggest that these workers' houses were highly planned investments and that care was taken to create properties which were fit-for-purpose and appealed to intended occupants. Furthermore, the use of specific architectural styling throughout

the 1770s-1790s was a fundamental part of this financial outlay. Consequently, these houses were not simply a representation of a patron's personal ambition but a complicated arrangement of architectural styles, existing local building conventions, occupants' expectations and new forms of textile management.

### **Interior Descriptions of workers' housing in Cromford**

Beyond an initial comment on the plan-form, the interior design of workers' housing at Cromford has not been the focus of extensive academic investigation. There are three main reasons for this. Firstly, as the properties are held in private ownership, access has been difficult to secure and consequently has not been undertaken. Secondly, the formation of the mill-preservation group, The Arkwright Society, in the mid-twentieth century has ensured a sustained interest in the mill complex rather than the houses. Thirdly, typical of many mid-twentieth century agendas in industrial heritage, little academic value was seen in investigating the interior of workers' housing. Reasoning that the interior would only reveal an obvious domestic or domestic/workshop function, scholars such as Chapman (1976, 156) quickly dismissed the study of housing in favour of a more detailed assessment of the business transactions and lives of partners Arkwright, Need and Strutt. Thus previous academic assessments failed to consider the workers' housing in Cromford as a significant element of material culture and therefore ignored the social and cultural importance of these properties. This has resulted in an unsatisfactory situation as extremely generalised accounts of the interiors of the houses have been created. Fundamentally, such an approach is highly problematic as it fails to consider the surviving building fabric and instead relies on interpretations that have not been substantiated by accurate observation and archaeological recording. Consequently, investigation has pursued a more historical patron-led agenda and it has been assumed that Arkwright and partners acted benevolently to provide occupants with a 'higher than average' standard of living.

The following section of the chapter offers a detailed interior assessment of workers' housing at Cromford and sets out to examine the daily, lived experiences of its occupants. Using a detailed archaeological survey of the building fabric, this

assessment is intended to determine genuine stylistic development and reoccurring occupation patterns within the housing interiors. Consequently, where possible, this assessment considered the provision of warmth, interior access, cellar, ceiling and floor arrangements. However, from onsite observation it was apparent that all housing surveyed had undergone some degree of alteration. Whilst much of this appeared to have occurred in the early-mid twentieth century as the properties passed into private ownership, it was also apparent that many examples of workers' housing had been altered in the advent of formal listing in the 1980s. Indeed, a smaller proportion of properties were modified *after* designation had taken place and often without official documentation. Yet, although subsequent renovations had removed many visual clues as to the original decor, sufficient remained across all houses surveyed to successfully discern the eighteenth century arrangement of these properties.

#### *Internal plans and arrangement*

A systematic investigation into the interior form of workers' housing at Cromford has established similarities between housing rows. The repetition of housing units with regular dimensions and styles inevitably created standardised internal forms. Duplicating the same interior would have been an easier, quicker and cheaper way of building. As a result, Cromford workers' houses can be easily categorised according to plan-form, as outlined below. As noted with the classification of the exterior form of housing above, this sequence is part of a wider typology which incorporates all housing across the four case-study sites (see Chapters Four to Six). This is to enable inter-site comparisons of housing forms without confusion or duplication. Clear linkages between housing groups have been established in Appendix 1.

#### *Plan 1: The workshop-dwelling*

This category is the earliest form of workers' housing in Cromford. The properties are three-storey with upper floor workshop and a single heated room on each floor (see figure 3.13). *Plan 1* houses are found in two rows (western and eastern) along North Street, have windows to the front and back elevations and direct access to the front and rear of the properties. The first and second floors are accessed via a straight-flight staircase positioned along the side elevation. This is partitioned off from the ground

floor room, using wooden boarding, but opened at first and second floor levels. Situated beneath the staircase, *Plan 1* properties have a small barrel-vaulted cellar; however, many of these were infilled during the twentieth century with all traces now removed.

*Plan 1* houses were heavily modified in the nineteenth century with the removal of numerous upper-floor windows and the transformation of the workshop into a bedroom space. The majority of *Plan 1* houses were also extended to the rear, either during the nineteenth or early twentieth century (figure 3.38). These extensions vary extensively and demonstrate a combination of coordinated programmes of work undertaken by the Arkwright estate (visible along the western row) as well as individual modifications made after the properties were sold into private ownership (visible along the eastern row). In the majority of examples this extension provided a separate kitchen and bathroom. At the same time the first and second floors of these properties were often subdivided into smaller bedroom spaces accessed via a small landing area.

#### *Plan 2: 'Out of the Blue'*

'Out of the Blue' is exceptional within Cromford as it is the only worker's house to reuse an earlier eighteenth century building. The *Plan 2* property was part of the 1776 building work at North Street and is also the only example of a double-fronted worker's house in the settlement (see figure 3.19). Due to extensive modern alterations, the original interior of the property is difficult to determine. Today, the ground floor of 'Out of the Blue' is L-shaped with a substantial section of the north corner partitioned to form part of the ground floor of the adjacent property 'The Old Workshop'. A modern winder staircase in the south-east corner provides access to the first floor of the property.

The first floor of 'Out of the Blue' has also been extensively modified and is now completely open-plan. A fireplace positioned centrally within the front elevation is possibly from the original phase of the house and demonstrates that the first floor room was once subdivided. This room provides direct open access into the original first floor of 'The Old Workshop' and it is likely that this unusual arrangement

originated out of a complex ownership agreement at the time the property was remodelled in 1776. A modern straight-flight staircase in the north-east corner of the first floor room, leads to the second floor and two bedroom areas.

*Plan 3: Three-storey accommodation-only*

From the late 1770s, this category of housing appeared throughout Cromford at The Hill, The Market Place and Water Lane and was constructed as either rows or semi-detached properties (see figure 3.23). The *Plan 3* plan-form was also adopted by speculative builders who constructed additional workers' housing in the Water Lane area of the settlement during the 1790s and early nineteenth century (figure 3.39). *Plan 3* houses comprise a single heated room on each floor, windows to the front and rear and direct access to the front and back of the properties. A straight-flight staircase along the side elevation provides access to the first and second floors. The staircase is partitioned off from the ground floor room, using wooden boarding, but opened at first and second floor levels. *Plan 3* properties were not provisioned with a cellar.

During the nineteenth or early twentieth century the majority of *Plan 3* houses were extended to the rear. These extensions vary considerably and appear to be individual modifications made after the properties were sold into private ownership, rather than changes made by the Arkwright estate. In the majority of examples this extension provides a separate kitchen and bathroom. At the same time the first and second floors of these properties were often subdivided into smaller bedroom spaces accessed via a small landing area.

*Plan 4 Two-storey accommodation-only*

These two storey properties appear at The Hill in the 1810s and are the simplest form of row housing seen at Cromford. With a single heated room on each floor, *Plan 4* houses have windows to the front and back elevations and direct access to the front and rear of the properties (see figure 3.28). Originally the staircase ran along the side elevation and was partitioned off from the ground floor room with a wooden divide. During the nineteenth or twentieth century, the first floor was sub-divided into two bedrooms, accessed independently from a landing area.

The majority of *Plan 4* houses have been extended to the rear. These extensions vary extensively and demonstrate programmes of work undertaken by individuals when the houses were sold into private ownership. In the majority of examples this extension provided a separate kitchen and bathroom area.

According to differences visible in the interior plan-forms of properties, the above typological assessment identifies four distinct categories of workers' housing. This is extremely significant as the number evidently differs from the six categories identified during the typological assessment of the exterior elevations (as discussed in the previous section of this chapter). This demonstrates that at Cromford there was more variation in the exterior form of properties than plan-form arrangements. A visual representation of the linkages between exterior and interior types is presented in figure 3.40. Of particular importance is the frequent and repetitive use of the *Plan 3* arrangement, especially in the later 1770s to 1790s in conjunction with *Groups C, D* and *F*. The current author therefore argues that the recurrence of the *Plan 3* arrangement reveals its versatility and suitability for housing early industrial workers in accommodation-only dwellings. It is noticeable that the form is common throughout the other Derwent Valley settlements considered in this thesis (see Chapters Four to Six) and appears as a fundamental 'type' within the typological sequence of textile workers' housing identified in Chapter One (see figure 1.5). Nonetheless, this is not to imply that all *Plan 3* properties were the same and it is clear that there were significant differences between examples, especially in the interior access, provision of warmth and quality of fittings, which needs to be examined further. Consequently, the following section now explores these differences in more detail and demonstrates how these affected the lived experiences of occupants.

#### *Interior access*

The access arrangements within workers' housing are closely bound up in the concepts of privacy, functionality and living standards (Timmins 2004 96). Champion (1996, 847) has argued that investigation into the types of interior access experienced by occupants, forms a fundamental part in analysing the spatial configuration of workers' housing and understanding the social structure of the built environment.

Consequently by registering changes to access arrangements, such as the location of a staircase, room divisions or quality of fixtures, the impact of this upon the structuring of architectural space and the lived experiences facing occupants can be determined. This next section will now consider the interior access of workers' housing at Cromford and the character of movement between floors.

### *Staircases*

The type of staircase used within workers' housing at Cromford changed little from the 1770s to the 1810s and comprised a straight-flight arrangement located against the side elevation nearest the front door and on the opposite side to the fireplace, with sharp winder to the top and bottom (see figures 3.13, 3.19, 3.23, 3.28). Caffyn (1986, 11-12 & 46-48) and Nevell (2008, 141-142) have both commented on the frequency of this arrangement within workers' housing as the shared use of chimney stacks reduced the overall cost of building in rows. As a result the staircases of adjacent houses were positioned either side of a party wall, meaning that its location was actually dictated by the positioning of the fireplace. Yet, although seemingly unintentional, this plan was also advantageous for occupants, as a straight-flight staircase required less space than other types of arrangement. In addition, unwanted noise from using the stairs could be restricted to one end of every two properties. Given that the majority of occupants are understood to have been employed in twelve-hour shift patterns, this seemingly small detail could have had a large impact on neighbourly relations! Nonetheless, despite these advantages, there was a significant drawback in their use in the three-storey properties, *Plan 1-3*. As these houses were only one room deep, the pitch of the stairs was adjusted to compensate, resulting in an overly steep first-to-second floor flight with smaller treads and a sharp winder to the workshop room (figure 3.41). Similarly steep arrangements of a slightly different form have also been noted at Darley Abbey (see Chapter Six). Whilst any contemporary views of this arrangement are not known today, it is noticeable that in recent years many of these staircases have been removed over safety fears and replaced with a less-steep version which subsequently encroaches further into the space of the second floor room.



Within all Cromford properties, the staircase was found to be partitioned from the ground floor room with a lath-and-plaster dividing wall and match-boarding throughout the stairwell (figure 3.42). The uniformity of this arrangement, with latch door, suggests that it was part of the original design of the properties and was standard for workers' houses at Cromford. By enclosing the staircase at the ground floor level, draught from outside or noise from the living area was reduced to the first and second floors and a greater sense of privacy between rooms was achieved. In housing belonging to *Plan 1-3* the first floor room was also partitioned from the staircase, again with a similar lath-and-plaster dividing wall (figure 3.43). Consequently these houses would have had a greater degree of separation between the three rooms, ensuring privacy between living and sleeping areas as well as, in the case of the *Plan 1* houses, preventing workshop users from viewing the bedroom area whilst travelling between the ground and second floors. The prevalence of this arrangement across all houses dating to the 1770s-1790s demonstrates the importance of controlled interior access, segregation and privacy to occupants of workers' housing at Cromford.

The character of the head of the staircase at the first floor level of *Group 4* houses and the second floor level of *Plan 1-3* is more difficult to determine. The presence of extensive modifications made during the twentieth century at the top of the staircase are indicative of the actions of individual householders and implies that the eighteenth and early nineteenth century arrangements were deemed inadequate for modern use. It is therefore probable that the upper floor room was originally designed to be open to the staircase with some sort of simple balustrade arrangement, which has subsequently been replaced with sturdier versions. However, it is possible that the examples seen in No. 17 North Street may be an original balustrade rather than an early nineteenth century addition (see figure 3.44). Despite this, anecdotal evidence collected by Joyce (2011 pers. comm.) suggests that *Plan 1* properties may have been designed without any balustrade and that weavers simply lowered a trapdoor when operating in the workshop room. This is a plausible explanation with trapdoor arrangements having been identified in other workshop-dwellings in West Yorkshire by Caffyn (1986, 14). However, given the modifications to properties at Cromford, it is difficult to prove conclusively.

Despite the uncertainties in determining the form of the head of the staircase, key aspects of the overall design are still clearly visible through the consistent use of other elements of staircase furniture. For this reason it is apparent that staircases within workers' houses at Cromford all conformed to a regular straight-flight arrangement with integrated handrail and degree of partitioning to the ground and first floors (see figure 3.41). The presence of this type of staircase across all four categories of housing at Cromford, suggests that interior access changed little over the decades of house-building. This contrasts with development across other Derwent Valley settlements at Belper, Milford and Darley Abbey as these demonstrate considerable variation in staircase types and access arrangements over a similar time period (see Chapters Four-Six). However, the subsequent development of workers' housing at Cromford appears to have been influenced by the initial use of workshop-dwellings (*Plan 1*) in 1776. It is noticeable that within these properties care seems to have been taken to keep industrial and domestic areas separate. This resulted in a complex arrangement in which a closed straight-flight staircase was designed to act as a physical barrier preventing a breakdown in the functional zonation of space. Consequently, it would have been possible to pass through the front door of a *Plan 1* property, up the staircase and enter the workshop without significant disruption to the domestic area of the house. This also meant that the workshop could operate with a greater degree of autonomy away from the household unit. Thus the structure of the staircase contributed to the early division and overall separation of household space.

The continued use of this type of staircase after the transition to accommodation-only forms of housing (*Plan 2-4*), resonates with the earlier assertion that workers' housing at Cromford was not designed to be architecturally innovative. Accordingly, when *Plan 2* properties were constructed in the late 1770s, the form was influenced by the earlier example established in *Plan 1* houses (figure 3.45). Arguably, once Cromford residents became familiar with the partitioned and close staircase, they became comfortable with the increased level of privacy the arrangement afforded the household. As a result, occupants desired a continuation of more divided interior space, which continued throughout *Plan 2* and *Plan 3* properties and to a lesser extent *Plan 4*. This indicates that the privacy and separation of both household activities and occupants became an increasingly important concept within workers' housing.

Cromford paralleled similar developments across other Derwent Valley workers' housing during the 1780s and 1790s. This indicates that occupants within all four industrial settlements had, largely, the same householder requirements.

### *Room divisions*

From the early-nineteenth century the spatial arrangement of *Plan 1-3* was altered with the addition of a series of rear extensions and interior sub-divisions to individual rooms. The variation in the type of work undertaken indicates that this was piecemeal by individual occupants or householders rather than as part of a coordinated response by the Arkwright estate, although it is possible that the estate undertook a limited number of rear extensions at North Street and the upper half of The Hill (see figure 3.38 and figure 3.46). This is in contrast to similar programmes of work undertaken at Belper and Milford, the majority of which appear to have been coordinated by the Strutt family (see Chapters Four and Five). At Cromford the majority of room divisions occurred to the first floor bedroom area. In some examples this room was simply converted into two smaller bedroom spaces, such as at No. 72 The Hill, which could then be independently accessed from a corridor off the staircase (figure 3.47). However, where houses had a two-storey rear extension added, the first floor was occasionally altered to accommodate a long corridor which led between the staircase and the new extension. This is seen at No.142 The Hill and No.32 The Market Place. An alternative arrangement is noted at No. 23 North Street and No.104 The Hill, in which the rear extension was converted into two rooms that were only accessible on walking through the original first floor space (figure 3.48). In this example, the lack of corridor arrangement has resulted in a reduced privacy amongst occupants wishing to use the original bedroom. In contrast, *Plan 4* properties were less extensively subdivided. This is a probable reflection of their small size, meaning that sub-division of space was neither feasible nor desirable. Despite this, several properties have been partitioned to provide two smaller first floor rooms.

The increased partitioning of rooms, with a focus on dividing the sleeping areas, indicates that by the early-to-mid nineteenth century occupants at Cromford were looking to improve privacy to elements of their household regime. Whilst

documentation relating to the occupants in the early years of the housing is limited, the detail in the Census Records (1841) reveals that workers' housing at Cromford was occupied by a combination of larger extended families, journeymen and lodgers. This suggests that the increase in interior division was aligned to the composition of family demographics at a time of transforming household conventions and views of social acceptability. Consequently, it is likely that the division of bedroom space represents the growing requirement to accommodate male and female members of the household in separate areas of the house. This, as Jackson *et. al* (2010, 27-28, 78) notes, points to a growing interest in the morality of industrial workers and a greater emphasis on linking public decency with health and happiness. However, within the examples at Cromford this appears to have been instigated through a worker-led process rather than coordinated by the mill firm.

#### *The provision of warmth*

The provision of warmth within workers' housing also offers a useful indication for the level of patronly investment. From the original purchase and installation through to retention rates, patterns of use and programmes of upgrades, a thorough assessment of the heating arrangements is essential in determining the daily lived-experiences of occupants at Cromford. Without exception each house was designed with a fireplace in every original room. This was made easier and cheaper due to the construction of houses in rows or pairs as fewer bricks were required to build back-to-back chimney breasts. The siting of the fireplace along the wall opposite the entrance into the house, whilst being a practical consideration (due to the back-to-back chimney breasts and position of the staircase), reduced through-draught by preventing cold air from blowing across the front of the fireplace. Efforts to retain heat appear to have been further maximised in the use of draught-boards by the front door. However, as the only known surviving example comes from No. 1 North Street, it is difficult to establish how representative this fixture was (figure 3.49). It is possible that rather than a wider patron-led initiative, the draught-board was a particular investment by a single household looking to increase heat-efficiency. Additionally, with the draught-board in place it was possible to enter the property and turn onto the staircase without

being able to see the majority of the living space. It is therefore worth considering whether this added privacy was actually the primary factor in its installation.

The largest fireplace within each house is located centrally in the side elevation of the ground floor room as the stone-built party-wall was deep enough to incorporate chimney flues of adjacent houses back-to-back. Rather than motivated by fireside aesthetics, it is likely that the combination of stone building material and a hillside setting necessitated the construction of thicker walls, which then made positioning the flues back-to-back a convenient solution. The style of the ground floor fireplace is not consistent across the four categories of plan-form. *Plan 1* and *Plan 3* (properties on The Hill) all conform to a decorative scheme comprising a large stone mantel sat on collar-blocks with a *cyma recta* profile, plain jambs and a stone hearth (figure 3.50). Vertical tooling patterns are visible on the mantel and top face of the collar-blocks with additional accentuated horizontal tooling along the edge. Where the interior of the fire surround is still visible, it is common to find a handle-shaped piece of metalwork situated on the inner face of each jamb, positioned in the mortar above the collar-blocks (figure 3.51). This metalwork appears to be a hanging point for either a companion set or cooking utensils and is consistent with the use of a small open range, although no example survives *in-situ* at Cromford.

The use of classical detailing in workers' housing at Cromford has already been discussed above with reference to the elaborate door surround of *Groups A-C*. In this respect, the *cyma recta* fireplace represents just another example of a classical influence brought into the design of these properties. However, unlike the door surround the use of a pronounced *cyma recta* profile sets these houses apart from other local examples as it is evident that the design was not an established regional building tradition. Its use at Cromford therefore implies a specific function. Consequently, it is important to establish the reason behind the use of this fireplace profile as it represents both an unusual choice and a significant financial investment by the patron.

The restricted presence of this particular type of fireplace to properties constructed in the 1770s and 1780s makes its use contemporary to the aforementioned elaborate door

surround. As noted above, by embellishing housing with popular architectural conventions (such as the classical detailing), a cleverly implied link between fashionable tastes and occupants' social status was established. This approach was intended to flatter an anticipated skilled workforce and entice them to settle in rural Cromford. Accordingly, fireplace and door surround work in harmony for this purpose. Whilst the door surround represented an externally visible public declaration of the status of industrial workers, the interior fireplace signified a private confirmation that the inhabitants were socially important, respected and successful.

The same *cyma recta* fireplace design is present in a number of properties built in the 1780s along Water Lane (figure 3.52). Constructed by speculative builders rather than the Arkwright estate, these houses are architecturally very similar to the *Group C a* properties. Such similarities appear to be part of a deliberate strategy to equip speculative housing with fixtures that were comparable to Arkwright's properties. This reveals an interesting pattern of behaviour in which local landlords were taking on the additional expense of installing classical details in order to replicate the specification set out by the Arkwright estate. It is an approach which likely reflects the need to ensure these additional 'non-official' workers' houses were just as desirable to the new mill workforce.

Use of the *cyma recta* profile was dropped in the 1790s and housing belonging to *Group C b*, *Group D* and *Group E* were constructed with a simpler ground floor fireplace comprising plain stone lintel and fine vertically chisel-dressed jambs (figure 3.53). This type of surround is comparable to versions seen at Belper and Milford (Chapters Four and Five) and would have been easier, quicker and cheaper to install than the earlier *cyma recta* form. Its introduction broadly coincides with the switch to a simpler door surround (*Groups D* and *E*) and a general demographic shift in the workforce population from skilled operatives to mill labourers. Collectively these architectural changes are further evidence that the built-form of workers' housing at Cromford was carefully selected in order to reflect and display the status of intended occupants. Consequently, the change to the ground floor fireplace is one of a number of physical transformations which represent the continued process of social ordering within the industrial settlement.

The original ground floor fireplace has been retained in the majority of housing examples and has survived with very little change or alteration. This is especially the case for fireplaces with a *cyma recta* profile and there are historically three reasons for this. Firstly, until the twentieth century these houses remained the property of the Arkwright estate. This meant that any substantial changes to the fabric of the houses would have been authorised and financed through a central administrative body. Clearly there was no impetus to change the fireplace surround and it is likely that this was because it remained fit-for-purpose as part of the house. This is linked to the second point, in that the original design of these fireplaces allowed changes in fireside technology, such as the transition to larger closed-range, to be easily accommodated. Crucially the distance between the two jambs was sufficient to incorporate new insets or ranges without alteration. In contrast, during the same process of change the narrower ground floor fireplaces in Belper (Chapter Four) were frequently altered and the jambs removed. Thirdly, the use of classical detailing has retained its popularity with Cromford occupants throughout the nineteenth and twentieth centuries, meaning that there was little motivation to alter the surround. Its popularity continues today. During the course of on-site recording undertaken as part of this thesis, occupants and homeowners cited that the fireplace was considered to be “the real beauty” of the house (homeowner 2011 pers. comm.). The later and simpler fireplace design is also well represented at Cromford; however, a greater proportion have been removed from properties with the introduction of central heating and the installation of a gas fire during the mid-twentieth century. These later designs do not invoke the same reaction from homeowners and therefore, prior to legislation, there was less emotional attachment to the original arrangement.

First and second floor fireplaces are not as well accounted for in Cromford as the majority were removed when central heating was installed into properties during the mid-twentieth century. Unlike ground floor fireplaces which were regarded amongst residents as being important, anecdotal evidence suggests that the upper floor fireplaces were treated as more of a hindrance in the pursuit of modernising internal space and, although protected with Listed Building status, were removed. In many cases these former fireplaces are now only recognisable as blockings within the chimney breast and by the presence of a hearth against the floorboards. This is

especially the case in the first and second floor rooms of properties along North Street and The Hill.

The character of the first floor chimney breast is different to the ground and second floors in that it projects only marginally into the room (see figure 5.54). This reveals the subtle care taken in the design of these houses and demonstrates that architectural characteristics were chosen according to the functional need of the occupants. In this case, as the first floor room was a bedroom space, maximising the floor-space for the household at night appears to have been prioritised over the efficiency of the heat source. Unfortunately, the arrangement of the associated first floor fireplace is difficult to determine as it has been systematically removed from the majority of properties to leave only the chimney breast and hearth *in-situ*. Despite this, there are enough examples remaining to establish the original form in at least three of the four plan-form arrangements present at Cromford (*Plans 1-3*). Comprising a plain stone lintel, dressed stone jambs and hob-grate, the original fireplace design is visible in No.9 North Street (1776) and No. 32 Market Place (1790s) (figure 3.55). Furthermore, it is similar to the contemporary style of fireplaces at Mill Street, Belper (1780s) (see Chapter Four). The design of the surround changed little within the subsequent phases of Cromford housing and was used again in the early nineteenth century properties along Water Lane. Overall the longevity of use is perhaps not surprising as the simplicity in the design meant that its production did not require a particularly skilled stonemason thus making it relatively cheap to produce. Whether this type of fireplace was used in *Group 4* properties along The Hill cannot be established as first floor arrangements do not survive today.

The majority of *in-situ* first floor fireplaces are mid-nineteenth century cast-iron replacements, such as those seen at No. 76 The Hill and No. 34 Market Place (figure 5.56). There is little consistency in the design of the inset which suggests that they were installed individually, possibly by occupants or by the Arkwright estate acting on individual request from occupants, rather than as part of a larger estate-led programme of works. This emphasises a point already made in the previous section that workers' housing at Cromford was not regularly updated and did not undergo a routine system of improvement.



The second floor fireplaces show a greater degree of variation in style than those on the ground and first floors. The most frequently observed arrangement comprises a brick chimney breast with stepped corbelling and simple segmental arch header (figure 5.57). Evidence from No. 64 The Hill suggests that this surround was used with a small hob-grate; however, in the majority of examples surveyed this was replaced with a mid-nineteenth century cast-iron inset. At No. 95 and 124 The Hill rather than a simple segmental arch header, a large plain stone lintel was fitted with a similar hob-grate (figure 5.58). The most obvious variation was noted at No.1 North Street and comprises a plain stone lintel, dressed stone jambs and hob-grate and is similar to the example seen in the first floor room at No. 9 North Street (figure 5.59).

With the exception of the mid-nineteenth century cast-iron insets, the three fireplace designs appear to be original to the construction of the houses. Consequently, it is likely that the variation is the result of successive phases of house-building and the differences in the individual skills and conventions of the builders or stonemasons responsible for the work. This is most evident in the variation within The Hill properties and supports the assertion that these houses were constructed as several smaller sequential phases. Nonetheless, it is plausible that the form of the fireplace is also a physical manifestation of a social hierarchy. Specifically, in line with the classical detailing of the door surround and ground floor fireplace, the stone arrangement as seen at No. 1 North Street, represents an unusually large investment for a second floor fireplace. This raises the question as to whether No. 1 North Street, with its additional interior space, draught-board and stone fireplace, was provisioned with superior fixtures and fittings in order to indicate a finer standard of living and a higher status occupant.

#### *Flooring, ceilings and doors*

The flooring, ceilings and doors have been replaced in the majority of workers' housing surveyed and only a small proportion of the original arrangements remain *in-situ*. The ground floors have been the most extensively altered in all types of housing at Cromford. Of the first phase along North Street, only No. 16 appears to have retained the original flag-stone flooring (figure 3.60). The use of flag-stones was not

continued after the construction of these two rows as from the 1780s clay tiles were used, for example in No. 64 The Hill (figure 3.61). It is noticeable that these tiles were similar in style, although not colour or arrangement, to examples at Belper and Milford. It is likely that they were all manufactured locally; however, without documentation this remains difficult to prove.

Flooring in the first and second floor rooms was either consistently obscured by modern furnishings or had been replaced by machine-cut timber boarding. This means that it is difficult to determine the original form of the arrangement or establish any differences between housing types or rows. The lack of clarity in the original arrangement also makes it more challenging to understand the impact of the flooring solution in relation to workers' experiences. Specifically the use of temporary soft-furnishings, such as rugs, undoubtedly would have improved sound and heating insulation. As these can be removed without discernible trace, and in the absence of inventories, the extent to which the flooring would have been covered during their use in the eighteenth and early nineteenth centuries remains a speculation.

Original ceiling joists are also not well accounted for within Cromford houses. The majority of properties surveyed during this thesis had modern machine-cut replacement beams or lowered plastered ceilings. In Nos. 1 and 16 North Street, the original arrangement is visible and comprises a simple construction with central beam running front/back across the ceiling to support a series of timber joists for the floor above (figure 3.62). Above the ground floor fireplace additional timber joists are visible as the supports for the first floor hearth directly above (figure 3.63). This arrangement is replicated at first floor level to support the hearth on the second floor. Where visible, all workers' housing at Cromford had a similar roof structure, which was supported on two roughly cut purlins (figure 3.64).

Few original interior doors were identified during the building survey. The majority were modern five-plank replacements, such as those seen at Nos. 68 and 72 The Hill. The lack of original interior doors within these houses accords with the assertion made previously that the properties were not extensively modified during the nineteenth century and that changes were only made in the twentieth century when the

houses were sold into private ownership. At No. 7 North Street, there is evidence for the original fixtures for the exterior front door. The presence of two iron pintels cemented in the interior face of the stone surround indicates that the original door was set back from the elevation and opened inwards into the ground floor room (figure 3.65). However, as this feature only survives in this one context, it is again difficult to advise how representative the arrangement was across all houses.

### *Cellars*

The variation in the provision of fixtures, cellars and outbuildings at Cromford far exceeds the structure typology created by considering the exterior style or plan-form of these houses. This suggests a less structured approach to certain elements of house-building, in particular sanitation and food preparation, during the formative years of the industrial settlement. The distribution of cellars offers a case in point as only a certain number of houses along North Street were provisioned with this feature. Two theories have been proposed for this and appear in UNESCO inscription documents. Firstly, that cellars were only built when the gradient of the existing hillside slope necessitated additional excavation. As a result, cellars were only constructed when it became as easy for builders to construct them as it was to back-fill the site to ground level. Secondly, based on evidence that the adjacent Bell Inn has flooded several times in the last few years, Joyce (2012, pers. comm.) has argued that certain houses would have been automatically constructed without cellars. Yet whilst these explanations appear pragmatic to explain the presence or absence of cellars in the first phase of housing in the mid-1770s, they are also problematic. It is apparent that the construction of these cellars represented a greater financial investment than simply back-filling the site, as the labour, skills, time and materials would have been an added expense. Additionally, the flooding of the Bell Inn was the result of a former sough sited close to the houses. Recorded mining activity during the late-eighteenth century demonstrate that at this time Cromford had a significantly lowered the water table. This means that cellar flooding in houses along North Street would have been an unlikely or exceptional occurrence.

There is a third explanation for the distribution of cellars along North Street but it is one that cannot be wholly substantiated. During the 1970s, and after several local floods, a contractor working on buildings nearby reportedly offered to infill several cellars along North Street at a reduced cost. As the properties were listed this action was never declared. Consequently, on sales particulars former homeowners stated that their properties never had cellars rather than face any legal actions over clandestine work. As houses have changed hands over the decades, today's homeowners do not know whether their property originally had a cellar or not and the lack of detailed deeds to any of the houses means that there is no independent point of reference.

The original point of access to the cellar was from the ground floor room via a wooden latch door adjacent to the staircase door (figure 3.66). This opened onto a stone winder staircase and facilitated safe access (figure 3.67). The arrangement implies that access was frequently required. Parts of the original arrangement are still *in-situ* at Nos. 16 and 17 North Street. The cellar comprises a brick barrel vault ceiling sat on stone foundations (figure 3.68). Additional stone buttressing has been added to the wall on which the fireplaces are built. Although more crudely executed these walls are chisel dressed. The lack of natural light to the cellar, as well as the distance away from the upper floor workspace and drop in temperature, suggests that it was used for food storage rather than an additional living area, working space or for storing textiles. The provision of a cellar, therefore, seems to represent an integral and important element in the food preparation process.

After North Street, the absence of cellars from workers' housing appears to reflect a change in the character of building plots as additional excavation to establish solid foundations was not required. Yet this decision would have been easier on the patron than the occupants. Whilst the lack of a cellar represented a simple financial saving to the Arkwright estate, the implications for the occupants were more extensive as it restricted their living and storage space. This lack of cellars in the Cromford properties is in direct contrast to the development of housing at Belper, where they became a standard feature from the mid-1780s onwards. Given the local tradition for cellars and semi-subterranean cellar arrangements in other Derbyshire housing, its absence is made all the more conspicuous. As a result it demonstrates that house

building at Cromford did not always follow established building principles and that choices at construction were determined by patronly investment. Subsequently, from the 1780s onwards, Cromford witnessed a more restrained approach to house-building with a lower level of investment by the Arkwright estate.

### **Industrial and domestic form, style and planning of workers' housing in Cromford**

The above sections have discussed the various exterior and interior components operating within workers' housing at Cromford. This has demonstrated that whilst property types were largely consistent across the settlement they also comprised subtle architectural differences which subsequently altered the experiences of occupation. Such variations reflect the number of economic, social and cultural factors contributing to the early development of the industrial community and demonstrate the ongoing negotiations in occupant welfare and patron vision. In addition it also reveals the changing requirements of the burgeoning cotton industry during the late eighteenth and early nineteenth century. In particular the trajectory of housing design at Cromford highlights the initial experimental nature of the venture and makes it evident that these properties should be interpreted as part of larger textile traditions. Consequently these houses reflect an unmistakable combination of influences encompassing: local building traditions, demographic changes, trade conditions and patronly interests. The remainder of this chapter will consider the consequences of this building programme in the formation of the first industrial settlement in the Derwent Valley and will reflect on the key themes of this thesis, as outlined in Chapter One.

### **Cromford housing as industrial units**

As Chapter One has established, workers' housing was an integral element in textile manufacture. In addition to providing accommodation for the workforce, the example of North Street demonstrates that it could also function as smaller units of production by housing the finishing processes. The parallels between North Street properties and housing from more established textiles industries in Lancashire and Nottinghamshire has also been acknowledged in Chapter One. Consequently the use of an established

form of workshop-dwelling at Cromford indicates that the Arkwright estate envisaged 'outworking' as a fundamental part of cotton manufacture. Moreover, by investing in this conventional form of housing as part of the first wave of business expansion there was a demonstrative commitment, and predicted longevity, to this type of arrangement. Yet in other respects North Street deviates from traditional workshop-dwellings. Specifically, larger scale workshops and domestic workspaces were frequently provisioned with a 'taking in' door to enable the easy movement of goods between the ground floor and the upper floor workshop space (Caffyn 1986, 13-14). Such arrangements are evident at Cromford Mill loomshop and local villages, all of which have outworking traditions (figure 3.69). However, they are noticeably absent from the facades of the North Street buildings. This has raised questions as to how productive North Street actually was in the weaving of cotton thread. For those scholars and professionals who have argued that these houses represented a new, innovative and more proficient form of manufacture, the lack of something so fundamental to the efficiency of upper-floor workshops has proved exceptionally problematic.

This lack of formal provision for the movement of yarn/cloth between the ground and upper floors has been discussed at length by the former conservation officer for Derbyshire County Council. Barry Joyce (2011, pers. comm.) has argued that the provision of 'taking in' doors at North Street was kept deliberately inconspicuous in order to remain sympathetic to Arkwright's aspirations for a manorial estate. He cites evidence from No. 26 North Street as a case in point to hypothesise the use of hidden 'taking-in' windows. In 1991, during alteration work to unblock the front windows of the upper floor at No. 26, a builder alerted Joyce to the presence of pin-hinges above the windows, fenestration that could not incorporate glazing and a pulley system attached to a purlin (Joyce 2011, pers. comm.). However, no visit was made by the council to the site, no photographic or metric study was taken and all evidence was removed and has since been lost. It is therefore difficult to substantiate this claim and understand the true character of the window or arrangement of fittings from this brief description.

Furthermore, there are substantial problems in accepting the use of ‘taking-in’ windows at North Street. Firstly, the size of the aperture in individual upper floor windows would have rendered any ‘taking-in’ arrangement extremely difficult to use. The weaver would have needed to rotate the yarn/cloth at 90 degrees against the stonework before pivoting it through the open window. This action would have risked scuffing, damaging and dirtying the yarn/cloth and therefore is an unlikely scenario given the contemporary value of cotton thread. Secondly, the location of the ‘taking-in’ window would have prevented any loom from being positioned close by. As this would have reduced the overall efficiency of the loomshop, it is highly improbable that this type of ‘taking in’ window would have been considered an adequate design or indeed tolerated by weavers on piece-work contracts. Thirdly, no such arrangement has been found at any other properties. All other houses surveyed have retained their original upper floor windows which, without fail, demonstrate glazing grooves consistent with the use of fully glazed units. Consequently the arrangement seen at No. 26, is highly unlikely to represent the remains of a ‘taking in’ window.

Returning to the assertion that North Street was constructed without formal provision for the movement of yarn/cloth between the ground and upper floors; it is important to consider the impact of this decision for occupants and building users. Arguably, the absence of a ‘taking-in’ door compromised the overall privacy and practicality of the house as the staircase would have been the only goods route to and from the workspace. Given the character and size of the staircase, not only would this have represented a more cumbersome undertaking, it would have also been greatly intrusive on the domestic areas of the household. Similar arrangements are present in Nottinghamshire housing belonging to framework knitters. This has led Champion (1996, 850 & 858) to argue that the use of interior staircases in this way reduced the distinction between industrial and domestic life. On all accounts, therefore, it appears as if the housing at North Street was poorly designed.

Conversely, given the substantial financial investment in constructing North Street and the experience of the partnership within the textile industry, it is difficult to imagine that the design of workers’ housing would have been overlooked. Indeed, returning to the argument that these properties were deliberately constructed to entice a skilled

workforce to Cromford, there is mounting evidence to suggest that the lack of a 'taking in' door fulfilled this requirement. Crucially by creating a house in which the only point of access was through the ground-floor front and back doors, weavers and their families were accommodated in properties which had the appearance of independent artisan units. With the exception of the large weavers' windows along the upper-floor, which were absolutely necessary to production, these houses were deliberately designed to appear as domestic rather than industrial units. As a consequence, architectural detailing that reflected obvious manufacturing functions, such as the 'taking in' door, were purposely omitted from the design.

#### *Evidence for an open weavers' row*

Somewhat linked into the debate regarding the presence or absence of 'taking in' doors, is the longstanding claim that North Street was originally designed to be open along the upper-floor as a single workshop space (Joyce 2012, pers. comm.). This assertion was recorded by Mitchell (1984) who published the earliest recollections of Cromford W.I. members and memories of early-twentieth century life. However, despite a press campaign as part of this thesis, it has not been possible to trace any former residents of North Street who had first hand memories of seeing an open upper-floor.

Assessing the plausibility of an open workshop arrangement is important in understanding the organisation of North Street as well as the daily working conditions facing occupants. Open workshop arrangements are known from other branches of textile production and are found throughout Lancashire, Nottinghamshire and Derby (see Chapter One). Accordingly, Arkwright, Need and Strutt would have at least aware been of the use of open workshops within domestic settings. However, the arrangement of the upper-floor of North Street is inconsistent with the use of an open workshop design. Principally, the location of the chimney breasts in the side elevation of pairs of housing would have impeded the 'openness' of the intended space by restricting access to a small passageway either side. This problem was clearly identified by other patrons wishing to construct housing with a single open workshop and alternatives were sought. One example identified by Ball (1971, 282) shows that



in order to preserve a single workshop space, the chimney breast was arranged to the rear of properties. This alteration was at the expense of the patron as it required the row to be built with one chimney breast per house, rather than the more economical back-to-back arrangement as seen at North Street. In contrast, the only apparent example of an open workspace with chimney breasts located in the side elevation comes from a smaller speculatively-built housing row recorded by Nevell (2008, 142,) in Manchester. Consequently, it is difficult to identify this type of urban informal construction with the large-scale planned accommodation at North Street.

Secondly, the style, position and width of the staircases within North Street are consistent with a mid-1770s date and indicate that they were contemporary to the construction of the houses. Consequently, the position of the stairwell to the rear of every property would have further restricted movement within an open workspace by reducing the line of access to a single passageway at the front of the room. Such a passageway would have been precisely in the usual position of the looms themselves; illustrating that at North Street an open workshop was incompatible with the design and function of the houses. The final point to consider is that there are no subsequent modifications to the upper-floor, such as evidence for blocking, which is consistent with the transition from an open space to the sub-divided arrangement visible today. Taken collectively, this strongly indicates that North Street was always designed as a series of individual workrooms.

In rejecting the open workshop hypothesis it is still possible to account for the numerous historic references pertaining to the arrangement. Ashmore (1969, 29) and Caffyn (1986, 12) have both noted a colloquial tradition for referring to the open roof-spaces of workers' housing as 'workspaces'. This was due to the frequent use of this part of the property as a temporary storage area for cloth awaiting collection by the merchant or mill-owner. Consequently, it is possible that there has been a misinterpretation of the term 'open workshop' in regards to the memories of former residents of North Street. This is further evidenced by the presence of concrete block partitions between Nos.1 and 2 North Street, which indicate that the loft-space was open until relatively recently (figure 3.70). Furthermore, given the lack of 'taking in' doors at North Street, it is highly plausible to suggest that the loft-spaces were used to

store goods awaiting transportation to Cromford Mill. One final point in this matter concerns evidence from weavers' housing in Yorkshire where pulley systems to hoist cloth up into the loft-space have been discovered (Caffyn 1986, 12). This raises the possibility that the fixtures exposed by the builder during renovations at No. 26, were evidence for the movement of goods *within* the workspace, rather than the transportation of textiles to-and-from the workspace.

#### *Relationship between North Street and onsite loomshop*

The model of North Street as a series of individual workshop spaces accessed *via* an interior staircase, contrasts sharply with the open-plan loomshop at Cromford Mill. This disparity in design is all the more intriguing given the broad contemporaneity of both buildings and implies that the North Street workspaces had a different function to the on-site loomshop. This appears to reflect the still experimental nature of early cotton production at Cromford and especially ongoing changes to the manufacturing process after the switch to calico production in the mid-1770s (Fitton and Wadsworth 1958, 73). It is possible therefore that whilst these buildings share continuity in architectural style, the different spatial arrangements are indicative of different types of cloth being produced. It is likely that the larger or heavier types of textile were manufactured on-site and the lighter, finer cotton cloths produced up the road at North Street. However, of further consideration is whether operatives within the loomshop were afforded similar standard accommodation to their North Street counterparts. Additionally, it is important to consider if the location of their workshop (domestic or on-site) reflected upon their social status as part of the industrial community. Both these issues are considered in more detailed in the subsequent section below, which aims to investigate the socio-cultural implications of workers' housing at Cromford.

### **Living standards, model housing and social ordering**

#### *Living standards*

The conventional assertion that workers' housing at Cromford conformed to the highest standard of living is derived from patron-led agendas which view Arkwright as both benevolent employer and determined social climber (Fitton 1989, 187).

Successive scholars, such as Chapman (1967, 159) and Rose (1986, 102), have argued that Arkwright set a standard which was emulated by later nineteenth century paternalist manufacturers including Titus Salt at Saltaire. Furthermore, as authors, such as Cooper (1993, 71 & 241), assert that the properties were a reflection of the patron, the assumption that these houses were of a high standard becomes inextricably part of the historical narrative of textile production.

This type of interpretation has proved very influential in the discussion of workers' housing and is most recently repeated in the UNESCO inscription documentation. Here, evidence cited from a series of contemporary accounts is offered as proof that the Cromford housing was superior to other industrial accommodation. Yet in relation to living standards these accounts are vague. In 1792 J.O. Malcolm stated that "these habitations are most comfortable" and in 1811 Farey described Cromford housing as "neat and comfortable [*sic.*]" (cited in Fitton 1989, 187). These references provide few specific details to qualify such statements and without further contextualisation it is not possible to gauge which housing rows the authors refer to and whether these assertions were personal observations or second-hand accounts. Based on the assumption that they represent the most innovative form of the Cromford housing, it has always been assumed that the accounts refer to North Street and that eighteenth century visitors would have been taken to see these properties. It is therefore odd that whilst Malcolm and Farey recant details of the various pubs, houses, villages and other property they encountered, that they failed to mention the name of the row, classical detailing of the door surrounds or even the activity of the weavers within the houses. Consequently, contemporary accounts remain frustratingly vague and cannot be offered as confirmation for the living standards of workers' housing at Cromford.

It is evident from the observations made in this chapter that there were apparent differences in the various types of workers' housing and that these would have contributed to the living standards experienced by occupants. However, it is also evident that there was a basic housing standard in operation at Cromford. This comprised adequately lit individual units with front and back doors, a partitioned staircase, heated rooms, outside privies, yard space and access to allotments. The problem in interpreting this basic arrangement, in terms of the living standards offered

to occupants, is that there is a degree of ambiguity regarding the size of the household. Without documentation there is no ascertainable way of establishing the number of people these houses were designed to accommodate. Additionally, the lack of rental accounts means that it is not possible to calculate the actual numbers living in these properties immediately after construction. Overcrowding, sub-letting and multi-household occupancies, for example, would have reduced the living standard by compromising the intended design and vision for use.

Principally, in the absence of documentation it is difficult to determine if the average household size was comparable across all types of workers' housing. This issue of household composition as an influential factor in living standards is particularly pertinent in regards to the interpretation of the smaller *Group E* houses. Specifically, it is questionable as to whether these two-storey properties were intended for smaller household units or simply representational of more cramped conditions. The tithe apportions (1841) reveal that these *Group E* properties were valued at a lower amount than the larger *Group A*, *D* and *F* houses and therefore it is likely that they commanded less rent. Consequently, it is also plausible that in the 1790s, occupants of *Group E* houses would have paid less-rent-per-head than those living in three-storey accommodation. As *Group E* housing first appeared at a time of trade depression and the need for lesser skilled mill operatives, these houses may have been constructed in order to address the issue of affordability rather than an obvious reduction in living standards.

There also remains a question of the use of architectural style and classical detailing as a reflection of living standards. Although these details, such as the *cyma recta* profile to the ground floor fireplace or front door surround, made no practical impact on the daily living conditions, their use did contribute to the occupants' experience of these properties. When assessed alongside flag-stone flooring, provision of a cellar and larger windows, these classical details appear to indicate that *Group A* represented a higher specification of housing than other types of property at Cromford. As *Group A* houses accommodated skilled workers, this demonstrates that living standards were inextricably linked to the fortunes of the industry and that high standards constituted figurative as well as practical elements of a building.

### *Model housing and social ordering*

The above discussion argues that the determining factor in the character of properties at Cromford was the need to maintain a reliable workforce and not the personal ideology of the patron. As a result, the association between Cromford and ‘model housing’, as laid out by Jackson *et. al* (2010, 9) and the UNESCO inscription documentation, requires further consideration. Chiefly, there is a question as to whether Arkwright acted with a spiritual or ideological agenda and whether housing was used as a means to impart ideas of social/moral improvement. Whilst Fitton and Wadsworth (1958, 112), have argued that the uniformity of Cromford housing epitomised a general late-eighteenth century interest in architectural style and human traits, Jackson *et. al* (2010, 13) have stated that Arkwright was more specific in his approach. In particular, Jackson *et. al* (2010, 13) believe that the classical detailing to North Street and The Hill properties embodied a hopeful patronly ambition that occupants may “aspire” to better themselves. Yet, given that these properties appear deliberately influenced by established textile building traditions, the current author argues that there is little to suggest Arkwright was looking to *improve* such highly skilled workers on their arrival to Cromford. This is reinforced in the selected community amenities which appear during the late 1770s-1790s as the annual parades (late 1770s), schooling (1785) and market place (c.1790) emphasise the industrial character of the settlement rather than the spiritual. Furthermore, contemporary accounts of Lady Glenorchy (1784) specifically record dismay that the “state of religion” in the mill settlement(s) was “very low” (Jones 1822, 501 cited in Fitton 1989, 187). It is therefore important to consider whether this perceived lack of religious guidance for occupants of Cromford is compatible with interpretations of model housing and community.

There is an additional problem with Jackson *et. al*'s (2010, 9) focus on classical detailing as an indicator of model housing. By suggesting that this type of architectural style was a marker of Arkwright's moral interest in his workers, its subsequent absence from the 1790s onwards implies that the patron was no longer attentive. Yet these later properties housed the lesser-skilled workers at a time of increasing industrialisation. Consequently they housed precisely the type of intended

recipients frequently referred to in the paternalistic campaigns identified by Jackson *et. al* (2010, 9). As a result, the current author concludes that the distribution of classical detailing at Cromford is highly unlikely to represent any attempt by Arkwright to improve the morality of his workforce.

Rather than looking to innovate social arrangements through the use of model or paternalistic endeavours, the evidence suggests that the design of housing was informed by pre-existing conventions and that the early structuring of the settlement followed these principles. As such, it is likely that any social structuring of occupants replicated the strict organisational arrangements in operation at Cromford Mill. The requirement to house both management and workers in one settlement bolstered the use of architectural design as a means to outline social structure. This is most apparent at North Street where 'Out of the Blue' was seemingly used to accommodate the overseer(s) responsible for the adjacent weavers. As a result 'Out of the Blue' is larger than other properties in the row, occupies a more prominent position towards the head of the road and has a symmetrical double-fronted façade. Crucially the design of 'Out of the Blue' invites comparison with more gentrified types of eighteenth century housing. In contrast the properties occupied by weavers, whilst intended to simulate independent household units, remain clearly identifiable as part of an industrialised building tradition. Use of similar double-fronted properties to accommodate overseers has been noted by Hughes (2010, 211) at metalworking settlements in Wales and suggests that it was common amongst some industrialists who sought to visually denote social hierarchy amongst workers.

So far, this chapter has highlighted the social distinction between weavers and other workers at Cromford to make the argument that the architectural form of housing reflected the status of its intended occupants. This is particularly interesting when considering the form of *Group C* properties constructed along The Hill as these houses conformed to the same stylistic principles as the *Group A* weavers houses along North Street, but crucially lack the upper floor workshop. In arguing that classical detailing reflected the status of occupants, its presence in *Group C* housing implies that these properties were also intended for high status workers. This raises two further points. Firstly, whether the type of occupants in *Group C* properties can

be identified; and secondly, whether they were afforded the same status as the weavers housed in North Street.

Although the lack of documentation has meant that the identity of the first occupants of *Group C* housing cannot be established, the use of classical detailing may indicate that these residents were also part of the finishing processes at Cromford Mill. It is plausible that the earliest *Group C* properties were constructed contemporaneously with the on-site loomshop and were envisaged as a coordinated change in the structure of the workforce. Consequently, rather than accommodating weavers with their own workspace, manufacturing needs changed and the settlement moved to accommodation-only forms of workers' housing. However, this assessment fails to answer the question as to whether the removal of the upper-floor workshop signified a social differentiation between weavers on North Street and those living along The Hill.

The construction of housing around the market place in the 1790s, adds to the ambiguity in determining the social ordering of the community. Without classical detailing, and given that these properties represented a smaller proportion of the workers' housing built at Cromford, it is plausible that this phase in house-building was intended to accommodate families who were engaged in other commercial forms of employment rather than textile working. Whilst this assertion remains hypothetical, it introduces the possibility that workers' housing at Cromford could be designed for occupants outside of Arkwright's payroll. This raises interesting questions as to whether all occupants were subject to the same housing regulations and how this might be enforced in situations where households were not financially dependent on Arkwright. Again without rental ledgers it is difficult to understand the arrangements under which houses were occupied and whether tenancy agreements were in force to govern the situation. However, the evidence presented here suggests that housing played a fundamental part in the social ordering of workers by both enforcing existing practices and instigating new social conventions as the needs of the settlement and industry changed.

### *Resistance and worker zonation*

The combination of land tenure arrangements and the complex hierarchical structure of late-eighteenth century textile workers appears to have resulted in the zonation of occupants at Cromford. This is most apparent in the construction of North Street as a weavers' enclave, with the deliberate positioning of 'Out of the Blue' between the workers' housing and the rest of the settlement. This type of segregation is more than the separation of skilled workers from lesser skilled mill operatives; it demonstrates the managerial structure in use at Cromford and the belief that the weavers required supervision. Caffyn (1986, 9) and Campion (1996, 857) have both underlined the importance of surveillance in outworking arrangements as a method of ensuring that the interests of the millowner/merchant were maintained. Due to the spatial arrangement of North Street (26 individual houses, each with their own top-floor workshop up two flights of stairs), this form of supervision is likely to have taken place through a system of fines and exterior visual surveillance, similar to the arrangement envisaged by Fitton and Wadsworth (1958, 232-246) at Cromford Mill. As a result it was logical for these workers to be separated from the settlement with an overseer placed strategically to observe the access route to the weavers' houses and monitor the flow of goods entering and leaving North Street. Consequently, the zonation of these workers appears to symbolize the preservation of workforce hierarchies whilst, at the same time, safeguard the business interests of the patron and ensure the manufacture of high quality textile goods.

North Street in the mid-1770s was not the only occasion worker zonation became a noticeable part of the structure of Cromford settlement. The construction of semi-detached *Group F* houses along Water Lane in the early nineteenth-century (referred to as 'housing for overseers' in the UNESCO inscription documentation), seems to indicate the withdrawal of overseers to a designated area within the settlement. It is interesting to note that a similar contemporary shift is apparent at both Belper and Darley Abbey with the construction of 'Cluster' houses some distance from the original foci of the settlements (Chapters Four and Six). This suggests a fundamental change in the structure of the communities with increasing emphasis on the spatial segregation of different statuses of occupants. As this phase was constructed under



Arkwright Junior's tenure of the mill complex, it is possible that he took inspiration from William Strutt's work at Belper (Chapter Four) and Evan's work at Darley Abbey (Chapter Six) and that *Group F* represents a very conservative experiment with the forms of workers' accommodation.

However, given the proximity of earlier speculative-built houses to *Group F* properties, it is debatable as to whether this phase of house-building actually represented deliberate zonation or the continuation of opportunistic land purchases. Furthermore, the lack of documentation relating to the first occupants means that it remains questionable as to whether these properties were intended for higher status workers or even those employed at the mill. Consequently, much of the detail which would help to interpret the reasoning behind apparent zonation is no longer available to researchers today. As a result, the type of ambiguities regarding the social structure of the occupants as outlined above, remain a fundamental part of the discussion into early workers' settlements.

#### *Pomp and Ceremony*

This chapter has so far demonstrated that the location of workers' housing at Cromford was habitually the result of opportunistic land purchases made by Arkwright. An argument has been presented which notes that the character of these houses was informed by a combination of factors including: the expectations of occupants, the financial position of the patron and the requirements of manufacture. However, this is not to suggest that the personality of Arkwright was wholly absent from the character of the settlement and it is important to revisit the issue of patron visibility. The current author suggests that rather than constructing a manorial estate, as argued by Joyce (2012, pers. comm.), Arkwright was more strategic in his input. This is evident in the naming of the first phase of houses as 'North Street' after the then successful Lord North. It was a calculating move which linked the houses to an international political framework and promoted a still experimental Cromford at a time when Arkwright was interested in exporting his manufacturing model to a national audience. Additionally, by honouring a person who was at the peak of their career, Arkwright may have seen parallels in his own success. Interestingly, however,

whilst Lord North's successes faltered shortly afterwards, North Street's name was retained. Perhaps, as today, a common misconception prevailed and 'North' was locally considered to refer in some way to a geographical point of reference!

Similarly, although Arkwright appears to have had little influence on the land tenure arrangements which determined the position of housing along The Hill, his influence is visible in the maintained regularity of these properties over several phases and their subsequent use as part of community acts of celebration. Specifically, as these properties were sited on the main thoroughfare to the spa town of Matlock Bath and the county town, Matlock, the design of the houses is suggestive of a processional route to the mill complex. Indeed, Fitton and Wadsworth (1958, 99) have argued that this route was the most likely path of annual 'Candlelighting' parades organised by Arkwright. These events were held at night during September as workers were gathered together to sing thanks-giving and progressed through the settlement to the mill buildings. Arguably, by merging community events with the spatial arrangement of the settlement and architecture of the houses, Arkwright created an indelible legacy which has endured over many generations of Cromford residents.

## **Conclusion**

This chapter has offered an in-depth analysis of workers' housing at the site of Cromford, the world's first cotton workers' settlement in the Derwent Valley. The conclusions and arguments are now considered against the key research themes for this thesis as outlined in Chapter One. The examination of exterior and interior forms of housing has identified a number of arguments and offered new interpretations. In particular, it has highlighted the significance of variation between housing types at different points in the development of the industrial settlement. It is argued that this variation in form relates to a number of interacting factors, including: the experimental nature of early cotton manufacture, local building traditions, market stability and the need to entice a workforce to a new mill community. This conclusion challenges the conventional historical-led narratives that portray Cromford as a philanthropic settlement or which argue that the architectural forms represent the start of a new typological sequencing for industrial housing. Rather, the evidence from

surviving building fabric indicates that the design of housing was shaped by pre-existing building conventions and used due to specific socio-economic circumstances. This further argues that the housing at Cromford was largely influenced by regional contexts, which in turn were influenced by the need to manage and accommodate workers in a changing industrial landscape.

The design and construction of housing at Cromford demonstrates that in every type or variation, the arrangements were synchronised to the needs of industry. As the manufacture of cotton changed quickly over the course of the late eighteenth and early nineteenth centuries this was reflected in subtle but important differences in the form of domestic architecture. The appearance of the earliest housing at Cromford, *Groups A-C*, suggests a deliberate use of a housing format that appealed to the ideals of existing skilled textile workers belonging to other branches of textile production. This study therefore concludes that the form of these properties carefully manipulated the appeal of the settlement in order to entice an appropriately skilled workforce to the site. Thus these houses were designed to fulfil a very specific function within the mill complex and relied upon the patron(s) having particular knowledge of the operation of textile production elsewhere. This ongoing dialogue between architectural form and occupant status is further evidenced by the change to a simpler exterior housing style in the 1790s (*Group D*) coinciding with the demographical shift to lesser skilled operatives and again in the 1800s with the construction of *Group E* arrangements.

Nonetheless, the designs of housing and pace of construction during these decades also reflects periods of economic instability. In particular, the house-building programmes at Cromford appear to have been affected by both financial pressures created as Arkwright expanded his manufacture to other locations, as well as general fluctuations within the international cotton markets. This is reflected in the piecemeal construction of *Groups C, D* and *E* and suggests that the rate of house-building was stalled as a safeguard against financial overburden. Thus this thesis revises the traditional view of Cromford as a series of large-scale building projects in favour of an interpretation which advocates smaller-scale construction in sequential rows. The impact of market forces is especially significant in considering the move to the two-storey *Group E* properties in the 1800s. The timing of these houses correlates with a

period of manufacturing expansion in the North West and increasing patterns of urbanisation and inner-city crowding. Thus this chapter has argued that the appearance of *Group E* housing was a reaction to changing industrial and economic circumstances, housing conditions seen elsewhere and subsequent lower worker expectations. Consequently, the Arkwright estate was able to reduce financial expenditure on their own properties, resulting in the *Group E* form, whilst still maintaining a comparatively high standard of accommodation in contrast to conditions experienced elsewhere.

Through a linked typological assessment of both the exterior and interior arrangements of housing at Cromford, Chapter Three has shed new light on the systems of production within the *Group A* workshop-dwellings at North Street. This has disproved the established model which describes the arrangement as operating as a communal open workshop form. The thesis offers an alternate interpretation, supported in the surviving building fabric, in which each house had a privately accessed individual workspace. This arrangement accords with the interpretation that the properties were constructed to entice skilled weavers to Cromford. Thus Chapter Three reveals that these houses operated as little units of production with a fair degree of autonomy but ultimately overseen by a supervisor housed within their own domestic property at the head of the row.

The case-study of Cromford illustrates that the first cotton workers' settlement was not constructed using a 'philanthropic' agenda or extensive patron 'benevolence'. Fundamentally this chapter has argued that there is a danger of using this terminology anachronistically in relation to late eighteenth century Cromford as such ideologies are rightly associated with the socio-economic context of the later nineteenth century. This thesis therefore argues that the construction of Cromford at the inaugural stage of mechanised cotton production actually conflicts with the core essence of philanthropic models or elements of moral reform. In other words, as the manufacturing model used by Arkwright relied upon attracting skilled workers to reside at Cromford, he was not looking to recruit sections of society who would be the targets for such moral improvements, as identified by Tarlow (2007, 125). Thus in the 1770s and 1780s it was not a question of moulding workers into respectable members of an industrial

community but employing those who were already respectable diligent workers who could bring commercial success to Cromford.

Nonetheless, this is not to suggest that Arkwright was without interest in his workers. The current author proposes that if any ideology could be said to be present at Cromford it would be the avocation of self-help or self-improvement. Evidence from the surviving building fabric and documented community events, as presented in Chapter Three, argues that Cromford was governed by the principles of individualism and self-sufficiency rather than any patron-enforced moral coding. This is reiterated in the lack of religious focus within the settlement and the Anglican, rather than nonconformist, faith of Arkwright. Consequently, this case-study argues that Cromford was underpinned by a philosophy that a happy and healthy workforce was a productive and stable workforce. This links the interests of Arkwright directly to the interests of his workers.

This chapter has also illustrated the patterns of daily life and the lived experiences of occupants at Cromford and demonstrated that the majority of housing conformed to *Plan 3* arrangements with heated living and bedroom spaces, partitioned staircase, access to outside privies and yard/allotment areas. However, similar facilities are discernible in all types of plan-form used across the settlement, with the key difference between *Plan 3* and *Plans 1 & 5* being the lack of a second floor bedroom space. Traditional interpretations of Cromford housing have been predicated on the idea that there were fundamental differences in the standard of accommodation between the design of weavers' housing along North Street, other three-storey housing and the two-storey properties. This thesis has provided a convincing argument that this was not the case. Rather, that it was the later changes to properties such as the subtle differences in the design of rear extensions, sub-partitioning of interior space and patterns of upgrade which produced many of the variations in the lived experiences of occupants at Cromford. Many of these themes will continue to be examined in the subsequent chapters and form the structure for the final discussion and conclusions in Chapters Seven and Eight.

## Chapter Four

### Belper

Chapter Four forms the second case-study presented in this thesis and focuses on workers' housing constructed at Belper, eight miles south of Cromford, by Arkwright's business partner Jedediah Strutt (figure 4.1). This chapter continues to explore the core themes outlined in Chapter One and aims to examine the influence of a patron's personal ideology on the subsequent development of a workers' community. In particular, it considers the distinction between the professional aspirations of a patron and personal ambitions in the pursuit of creating accommodation for employees. Through an analysis of contemporary documents against surviving building fabric, Chapter Four also addresses the manipulation of documentation in the production of research agendas. Consequently it explores the construction of patron mythologies in determining the authoritative account of house-building schemes and whether the visual message transmitted by these buildings is interpreted differently according to the *perceived* actions of the patron.

Belper Mill was operational in 1778 and represented a considerable financial investment for Strutt as the sole patron of the venture (Hawgood and Spendlove 2011, 8). The siting of this second mill complex is notably similar to Cromford, with available land, consistent water levels and the presence of surplus workers from existing industries (Fitton and Wadsworth 1958, 77 & 225; Harte 1977, 8; Hawgood and Spendlove 2011, 15). This strongly indicates that Strutt, as a successful hosier and businessman, had researched the practicalities of the endeavour. However, the motivation behind Strutt's investment at Belper has been divisive amongst scholars. Fitton and Wadsworth (1958, 77) have argued that Strutt established his own mill specifically after Arkwright's second patent as a demonstration of his moral objection to his former partner's business dealings. This has given rise to the presumption that the subsequent workers' houses at Belper were constructed with paternalistic intentions. As a result, successive investigations into the workers' community have been influenced by Fitton and Wadsworth's (*ibid.*) assertion.

The workers' settlement at Belper is situated approximately 300m to the south-east of the mill complex and is arranged within a loose grid pattern pertaining to the older pre-enclosed field system. Workers' housing forms are varied and diverse, comprising: terrace, back-to-back and 'Cluster' arrangements interspersed with other community amenities such as school, shops, allotments and chapel. Many of these houses are listed with Grade II status and date to the period between 1780 and 1820. To the east of the housing a small Unitarian chapel defines the south-east limits of the original industrial community. In the nineteenth century Belper town steadily expanded to encroach upon former allotment areas so that today the workers' settlement and town run seamlessly into one another. Additionally, during the 1840s, the Matlock-to-Derby train-line was allowed to pass through the middle of the industrial settlement, resulting in the demolition of several workers' houses. Despite these changes, the original character of the community survives and gives a unique insight into late-eighteenth century planning.

#### *The Strutt family and early Belper Mill*

The documented historiography of the Strutt family has substantially influenced the direction of research into the cotton industry at Belper. Specifically, during a site clearance of Belper Mill in the 1950s the chance discovery of surviving business and personal accounts propelled the family to academic prominence. Fitton and Wadsworth's (1958) subsequent publication specifically referenced Strutt's character as an explanation for the success and trajectory of the cotton industry at Belper. Their close reading of these records delivered an endearing account of a close, pious and disciplined family whose patriarchal figurehead was humbled by his own financial success. The result is a complex characterisation of Strutt as both a mechanical genius and a conscientious employer. It is their interpretation that has underpinned all ensuing research, including the official UNESCO documentation and has latterly become something of a fusion of historical fact and local mythology. Consequently it is difficult to distil the actions of Strutt and his family from the subsequent interpretations applied. This has led to the assumption, by several local historians and scholars such as Cooper (1991, 241), that all actions undertaken by the Strutts in developing Belper had a benevolent origin.

The development of Belper Mill was steady with the construction of the first mill, South Mill, in c.1778 and a second, North Mill, added by 1784 (Johnson and Skempton 1955-7, 189; Fitton and Wadsworth 1958, 78) (figure 4.2). As these buildings were conventional in plan, demolished in the nineteenth century and without surviving documentation, they have received very little academic attention. Indeed, they are only referenced briefly in published accounts, such as Johnson and Skempton (1955-7), Fitton and Wadsworth (1958) and the UNESCO inscription documents. In contrast, a greater level of attention has been afforded later building phases, such as West Mill (c.1795) and a second North Mill (1803). These buildings survive and have been frequently described as ‘innovative’ with unusual fireproofing elements (Fitton and Wadsworth 1958, 198). However, perhaps more importantly to the study of industrial history, the associated documentation for these buildings survives in abundance. As a result, these later mill buildings have been easier to investigate using a historical methodology and have, therefore, attracted greater attention from researchers. Yet this has resulted in a general overreliance on documentation, which has precluded more archaeological forms of research, and facilitated a narrowing of research agendas. This is also reflected in the approach to the study of workers’ housing.

#### *The creation of a workers’ community*

Today, workers’ housing at Belper is often referred to as the greatest legacy left by Jedediah Strutt and his sons (Smedley 2012, pers. comm.). Yet the building fabric of these houses is rarely the focus of published research. As evident from scholarly attention by Chapman (1976, 123), Cooper (1991, 241), Jackson *et. al.* (2010, 14-15) and in the UNESCO inscription documentation, the development of the settlement has been described from documentary accounts, rather than the surviving houses themselves. This is problematic as the accounts cited by these scholars refer to a period of community life in the early-mid nineteenth century and *after* the primary phases of house-building. Consequently an interesting dichotomy presents itself. Whilst the settlement is used as fundamental evidence to illustrate the benevolent nature of the Strutts, the actual physical manifestation of this, and in particular the housing, has not been properly assessed.



The process of forming a workers' community at Belper started as the first mill became operational in the late 1770s. In drawing an initial workforce from the children of local residents employed in existing industries (principally nail manufacture), Strutt mirrored a model which had been successful at Cromford. It was an approach which ensured that his employees had existing ties to the area and accommodation within the town (Fitton and Wadsworth 1958 104). Consequently, the strategy was economically advantageous to Strutt as he gained a workforce without the need to invest in their housing. Yet importing this model from Cromford appears to contradict the assertion that Strutt established Belper with moralistic intentions. Fundamentally, it suggests that Strutt concurred with the early development of Cromford and therefore followed an approach rather than led cotton manufacturing in a different direction. Additionally, there is no corroborative evidence to suggest that Strutt was indeed looking to influence the domestic lives of the first generation of workers. What emerges, therefore, is a picture of Strutt as an astute and experienced businessman who, in line with other industrialists, understood the risks in establishing a new manufacturing site. As a result, the image of Strutt as a benevolently-minded individual appears to be an anachronistic creation, developed when the settlement was at its peak in the nineteenth century and when inspiration for paternalistic endeavours was perhaps more forthcoming.

#### *The first housing of the 1780s*

Owing to a lack of surviving building accounts from the late 1770s and 1780s, the precise order and pace of construction for the first workers' housing at Belper is not certain. Furthermore, until recently, there has been disagreement over what constituted the first phase of house-building within the settlement. In the 1960s, Smith (1962, 259) and Chapman (1967, 123) argued that Belper was a uniquely planned and innovative workers' community which had been cleverly designed by Strutt as a benevolent industrialist. Their research only cited housing examples which they felt supported this interpretation, such as housing along Long Row (1790s) and the later Cluster properties (1810s). Smaller, simpler and brick-built workers' housing dating to the 1780s went unmentioned. Although these earlier workers' houses have since been acknowledged by listing designation in the 1970s, the influence of these

industrial historians continues. There remains a perception that because housing from the 1780s was constructed without Strutt's influence in the design it therefore represents a less important part of the industrial settlement. This extreme form of patron-centric research is highlighted in a recent statement made by Joyce (2011, pers. comm.). He argues that the 1780s properties were part of an "inferior" local housing tradition and therefore should not be considered a true part of the workers' community. However, as already discussed in Chapter Three, the use of established building conventions was an essential part of the house-building programmes of Derwent Valley millowners. Thus there is no conflict between describing these 1780s houses as 'local' *and* part of the workers' community.

The absence of building accounts dating to the first years of Strutt's activities at Belper has resulted in reliance upon later records and in particular the Deed of Arrangement Title Map, 1829 (DRO D1564/28). This document provides a chronological list of all land purchases made by the Strutt estate and has been used in the UNESCO inscription documentation to determine that the first phase of housing was constructed along Mill Street and the Short Rows in 1788 (figure 4.3). This interpretation has been made on the assumption that Strutt would not have built on land unless he was the legal owner. However, as the document goes on to reveal, during the 1780s-1790s Strutt frequently built on land held in a mixture of rental agreements. Consequently, 1788 cannot be definitively cited as the date of construction for housing along Mill Street and the Short Rows. It is entirely possible for Strutt to have constructed them earlier whilst the land was still rented as he may have felt secure enough in the tenure arrangements to make this substantial investment.

An earlier date for the first housing along Mill Street and the Short Rows is further supported by two other sources: the written accounts by Glover (1829) and the baptism records of the Unitarian chapel on Field Row (one row over from Mill Street and The Short Rows). In Glover's (1829, 103) account of Derbyshire history he refers to the construction of a Unitarian chapel "chiefly at the expense of the Messrs. Strutt" in 1782. Ecclesiastic records for Belper demonstrate that the Field Row chapel was the only Unitarian chapel to be built during the later-eighteenth and early-nineteenth

centuries (Howard Hague 2012 pers. comm.). Additionally, the Unitarian baptism records for Belper reveal administrative inconsistencies between 15<sup>th</sup> August 1780 and 6<sup>th</sup> August 1782 (DRO D1973 JU/1-7). It is possible that this disruption in the records corresponds to the physical upheaval during a move, c.1782, from a general non-conformist meeting house to the purpose-built Field Row chapel. Whilst neither source mentions workers' housing at Mill Street and the Short Rows, it does at least accord with the assertion that Strutt was building on land before he became a legal owner. Furthermore it demonstrates that the area around the site of the first workers' housing was the focus of Strutt's financial investment earlier than the assumed 1788 date.

Affirmation of either the 1782 or 1788 date demonstrates that the first phase of house-building at Belper was not synchronous with the initial expansion of the mill complex in 1784. Moreover, differences between the alignment of housing at Mill Street and the Short Rows indicate that this first phase was staggered over at least three building seasons. It is likely that Mill Street (south) and adjacent Short Row (middle) were built as a single or sequential phases with Mill Street (north) and Short Row (end) each constructed separately. This phenomenon is more frequently observed in speculatively-built urban properties as builders constructed each row individually so that they could use it as mortgage collateral against the construction of the next row (Nevell, 2008, 149; Hughes 2010, 214). At Belper, the situation is presumably indicative of Strutt looking to balance the needs of an ever-expanding workforce against available capital to fund this work. However, the difference between 1782 and 1788 is significant in determining the pace of Strutt's investment in the workers' settlement. Evidently, the construction of the four rows over the majority of the 1780s, perhaps as finances allowed, presents a different picture than a more intensive building programme undertaken in the final years of the decade.

#### *Expansion in housing in the 1790s*

Throughout the 1790s the continued expansion of Belper Mill resulted in a second phase of house-building and the construction of a series of rows along Chevin View, Crown Terrace, Long Row and Field Row (figure 4.4). This represented a vast

augmentation of the workers' settlement at several disparate locations. Additionally, this phase also marked a break from the prevailing local building style with the introduction of a stone-built interlocking 'L'-shape form at Crown Terrace and Long Row (Fitton and Wadsworth 1958, 205 & 212) (figure 4.5). The development of these properties was broadly contemporary to the construction of West Mill (c.1793) and the use of experimental forms of structural fire-proofing. Fitton and Wadsworth (1958, 247) have argued that the catalyst for these pioneering changes was the addition of Strutt's eldest son, William, to the family business. As a result, the 1790s have been described as a coordinated period of intense innovation at Belper as the Strutt family grew more confident in managing their manufacturing concerns (*ibid.*). Specifically, the unusual plan of the 'L'-shaped properties has been interpreted as a purposeful investment to improve the lives of their workforce. Consequently, these properties have come to epitomise the view that the Strutts were philanthropic (Smith 1965, 68 & 70; Chapman 1976, 123).

The assertions made by Fitton and Wadsworth (1958), Smith (1965) and Chapman (1971) were based on the brief observation of a small number of workers' housing dating to the 1790s. Yet their work has since been reiterated in the UNESCO inscription documentation and forms the core assessment provided by Jackson *et. al.* (2010, 15). In contrast, analysis of surviving houses and a close reading of contemporary building accounts argues that construction in the 1790s is best characterised as piecemeal over several years. In particular, evidence from accounts kept by the Strutts demonstrates that the construction of Field Row and the brick houses in Long Row was ad-hoc, starting in May 1794 and completed throughout November that year (DRO D6948/8/3). Similarly, two years later, the construction of stone-built properties in Long Row was staggered throughout August 1796, only to be finished at the rate of two or three houses in the beginning of 1797 (*ibid.*). This cautious approach to house-building appears to reflect instability in trade conditions during the decade, also reflected in the stilted progress of the West Mill, and a hesitance by the Strutts to over-commit funds at a time of decreasing profit margins (Fitton and Wadsworth 1958, 207-208). Accordingly, the pace and manner of construction of workers' housing in the 1790s actually appears similar to that undertaken in the 1780s.

### *The early nineteenth century 'Cluster' houses*

The form of early nineteenth century workers' housing at Belper is extremely distinctive and once again marks a decisive break from earlier building traditions. Constructed after 1805, this third phase of house-building comprised an unusual 'Cluster' type property (see Chapter One) in which a larger building was sub-divided into four so that each housing unit was both semi-detached and back-to-back (figures 4.6 & 4.7). These properties occupy more spacious plots of land and each have individual gardens, privy and pigsty. As a result, they have been interpreted in the UNESCO inscription documentation as high-standard innovative accommodation for overseers. However, the surviving architectural plans for the properties (DRO D1564/23) reveal that the privies and pigsties were later additions, meaning that the houses were originally far less ambitious in their facilities. Furthermore, there are no contemporary rental accounts that indicate these houses were reserved for overseers, only that they commanded a greater rental amount. The interpretation of these Cluster houses provides a case in point for the problems with patron-centric research agendas. The perceived importance of these properties rests on their unusual form which in turn has been interpreted as an act of patronly benevolence and a desire to improve the lives of workers. Yet, as evidenced in the architectural plans and in the building fabric, the original scheme as intended was never realised. Specifically, only five of the planned eight blocks were actually built. This demonstrates that the Strutts' house-building policy in the early nineteenth century continued to be underpinned by financial caution and a preference to halt planned building work rather than overstretch resources. Consequently, any notion of benevolence was carefully balanced against the threat of financial insolvency!

The above overview describes the development of workers' housing at Belper between 1782 and c.1820. It reveals the continued difficulties in analysing industrial sites in the Derwent Valley with prevailing patron-centric research agendas. Principally, by establishing the Strutts as a family of innovative and benevolent industrialists, an approach has developed in which the *perceived* intentions of the patron are given greater credence than their *actual* actions. As a result, evidence from surviving workers' housing and accounts pertaining to their construction are only

referenced in corroboration. Once again, there is an expectation that the settlement should benefit the character of the patrons and the magnitude of their achievements in early cotton manufacture. At Belper this is revealed as the deliberate and selective use of housing examples, such as the 'L'-shaped Long Row properties and 'Cluster' houses, to demonstrate that the Strutts innovated both industrial and domestic design. This perpetual link between architecture and the character of the patron has resulted in the perception that Belper represented a coordinated industrial settlement carefully orchestrated to elevate the living standards of workers engaged in cotton production. As a result the presence of more conventional forms of housing, the stilled pace of construction, failed design schemes and the Strutts' conservative fiscal strategy have all been downplayed in favour of existing hypotheses proffering philanthropic gestures. Thus the current author argues for a more piecemeal and gradual approach to house-building schemes at Belper which responded to, and was informed by, industrial practices and available finances.

#### *Archaeological assessment of the surviving workers' housing*

The preceding section of this chapter has demonstrated that a scholarly preoccupation with the personal ideologies of the Strutts as patrons has influenced the study of workers' housing at Belper. Principally it has encouraged a prescriptive methodology in which the house is characterised through brief and perfunctory records pertaining to its external architectural style and plan-form. Symonds and Casella (2006, 143-145) have also argued that such arrangements were typical of mid-twentieth century industrial investigations, as highlighted by Smith (1965) and Chapman (1971), and arose out of the need to record and classify a huge volume of industrial monuments in the after-war period. However, the inadequacies of this form of data collection have been discussed in detail in Chapter One, which highlights the need for a sustained systematic programme of interior, exterior and landscape survey. Consequently the remaining sections of this chapter are dedicated to primary research and look to deconstruct some of the myths attached to workers' housing. Accordingly, this chapter proposes an alternative reading and highlights the disjointed use of multiple architectural styles and plan-forms over an extended and often stilled period of construction. Finally, by assessing the interior as well as exterior of these houses, this

thesis goes on to explore the lived experiences of the first generation of occupants at Belper.

### *Exterior descriptions*

Although there is a breadth of housing forms present at Belper, the conventional focus on their exterior elevation and plan-form has resulted in the formation of a limited typological sequence. Based on the assertions made by textile historian Chapman (1976, 123), the most frequently cited typological assessment comprises just three classifications: the ‘L’-shaped Long Row house, the Cluster arrangement and an amorphous group of other more conventional housing (see figures 4.5 & 4.7). For Chapman (1967, 127) emphasising the presence of these two more unusual types of property was essential to his argument that the Derwent Valley represented an area of unprecedented development. As a result, this brief typology fulfilled his research interests. However, Chapman (*ibid.*) was also eager to link Belper with the more famous site at Cromford and therefore his typology also fostered the assertion that innovation in house-building at Belper was linked to the aftermath of the death of Arkwright in 1793. Consequently, housing in Belper has never been typologically assessed using a framework independent from Cromford. This has led to a complicated relationship between the creation of exterior housing descriptions, the link to patron-centric agendas and the assumed chronology for industrial development within the Derwent Valley.

Chapman’s (1967) assertions have formed the basis for subsequent investigations, such as Derbyshire County Council’s “Derbyshire Extensive Urban Survey Archaeological Assessment Report” (2001). This document provides a chronological gazetteer for the built-environment within Belper and is arranged according to the main streets and thoroughfares. Noticeably, whilst housing at Mill Street, the Short Rows, Field Row, Crown Terrace and Chevin View are all considered as part of larger urban areas, Long Row and the Cluster houses are singled out separately. A similar preference, though less marked, is discernible in the UNESCO inscription documentation. As a result, there is a lack of synthesis in the overall investigative of workers’ housing at Belper. This reflects many of the issues raised in Chapter One. In

particular, the categorisation of housing according to their exterior arrangement and plan form as either ‘innovative’ or ‘conventional’ has underpinned the level of research afforded certain properties. This has resulted in a fixation on the period between 1793 and 1820 due to a characterisation of this phase as a “bold vision” in house-building (Chapman 1967, 127). It is also linked to the general disinterest in accommodation-only housing prior to this date. As a result, conventional approaches to the sequencing of housing at Belper fail to engage with the exterior of the majority of housing present.

The typological assessment offered in this thesis forms a reclassification of workers’ housing at Belper and sets out to address some of the criticisms made in regards to both Chapman’s assessment and subsequent legislative documentation. Using a detailed archaeological survey of the building fabric this typological review is intended to draw attention to genuine stylistic development and reoccurring patterns within the housing exteriors. It is not intended to be used independently and separately from a discussion of the interior arrangement and so clear links to the plan-form of properties have been made, where appropriate. This means that research can move beyond the façades and begin to investigate the workers’ housing as a significant component within the industrial settlement of Belper. It should be noted that this classification is a continuation of the form used at Cromford (Chapter Three) and therefore starts with *Group G*. This is to enable inter-site comparisons of housing forms without confusion or duplication. Clear linkages between housing groups have been established in Appendix 1.

#### *Group G: unaligned elevation*

Two-storey brick-built *Group G* houses, as seen at Short Row (middle), comprise an off-centre doorway surmounted by a segmental brick arched header, single sash window to the ground floor and a small first floor window sat mid-point within the elevation (see figure 4.3 & figure 4.8) . Consequently the windows are not aligned. Although the first floor window lacks formal sill or lintel it appears to be part of the original design rather than a later insertion (figure 4.9). The size and construction of the window suggests that it was relatively inexpensive and quick to produce. This



meagre lighting solution may have been the reason as to why a proportion of *Group G* houses appear to have been quickly remodelled to *Group H* type, for example Mill Street (south) housing (see figure 4.3).

*Group G* appears to be the basic elevation form seen at Belper and opens directly onto the street frontage. It is likely that this was the most economical design available to the Strutts in the 1780s. The simple brickwork and fenestration therefore plausibly denotes it as the first housing row. The *Group G* elevation was used with a *Plan 5* plan-form and it is probable that the same elements which made it economic for the patron ultimately made it unsatisfactory for the occupier (figure 4.10). Consequently this form of exterior arrangement was only used briefly in the 1780s and does not appear in other workers' housing within the Derwent Valley.

#### *Group H: aligned elevation*

*Group H* elevations are proportionally and stylistically similar to *Group G*, with an off-centre doorway surmounted by a segmental brick arched header and single sash window to ground floor (see figure 4.3 & 4.4). However, *Group H* elevations have a similarly large sash window to the upper floor(s). These windows are vertically aligned with plain stone sill projecting from the elevation and a lintel set flush (figure 4.11). The additional large window in the upper floor(s) of *Group H* demonstrates a greater investment than the previous *Group G* elevation and a higher living standard due to increased provision of lighting.

*Group H* shows variety in the method of construction as properties are either two-storey (Mill Street, Long Row Nos.5 & 6 and Short Row end) or three-storey (Field Row and Chevin View). This category of elevation had a longer life-span than *Group G* and was used from the 1780s at the Short Rows, to the construction of Field Row in 1796. However, it is possible that these properties, such as Mill Street (south), were originally *Group G* houses that were subsequently converted to *Group H*. *Group H* elevations are numerous within the Derwent Valley at Cromford (Chapter Three), Milford (Chapter five) and Darley Abbey (Chapter Six) as well as throughout the East Midlands (Cuckney, Nottinghamshire) and Yorkshire/Lancashire (Addingham, West Yorkshire) regions. The flexible nature of *Group H* elevations to a range of housing

contexts is noticeable by its use with both *Plan 5 and Plan 6* plan-forms (see figure 4.10 & figure 4.12).

An important part of a *Group H* façades is its setting behind a garden or forecourt area. This formal demarcation of space provided a boundary for each individual house. The scale and form of these vary considerably, with Mill Street (north), Short Row (end) and Chevin View (east) all fronted by a stone wall and garden area (see figures 4.3 & 4.4). In contrast Field Row has a brick forecourt area and Chevin View (west) a more basic stone flag setting (see figure 4.4 & figure 4.13). In all but the Chevin View (west) example, the boundary wall rises significantly towards the house frontage. This is a significant part of the character of *Group H* façades.

#### *Group I: composite aligned elevation*

Appearing from the 1790s onwards at Long Row (south-west), Long Row (north) and Crown Terrace, *Group I* elevations are three-storey and stone-built (see figure 4.4). With similar segmental arched door header and fenestration, there are notable stylistic comparisons between *Group I* and *Group H* elevations. However, *Group I* elevations mark a substantial change as this is the first elevation in which the internal form of the house becomes externally visible through the placement of additional windows (see figure 4.14). As there is variation in the patterning of these windows, there are two distinctive sub-categories within *Group I* elevations, although both sub-categories were used with the *Group 7* plan-form (see figure 4.5).

#### *Group I (a)*

Sub-category *Group I (a)* appears exclusively at Crown Terrace and is understood to have been constructed in the early-mid 1790s. In addition to the basic *Group H* fenestration, *Group I (a)* has additional windows which light the stairwell and cellars of the even-numbered properties along the row (figure 4.15). It is noticeable that the positioning of both windows within the façade makes it difficult to ‘read’ their function in relation to specific houses. The small staircase window is positioned off-centre towards the odd-numbered properties and comprises a small six-pane iron-framed window situated at eaves height. The cellar window is positioned at ground

floor height and equidistant between pairs of doorways. Similar staircase and cellar windows are visible in the rear elevation, providing light to the odd-numbered properties.

*Group I (a)* elevations are set behind a small flagstone forecourt arrangement which is similar to the frontage of Chevin View (west). It is possible that the forecourt was once finished with a small iron railing which formally demarcated the areas of individual houses; however, the majority of ironwork within Belper was removed during the 1940s.

#### *Group I (b)*

*Group I (b)* façades at Long Row (south-west) and Long Row (north) were constructed in 1796-1797. Although similar to *Group I (a)*, they differ in the position of the staircase window with *Group I (b)* elevations having a first floor window positioned off-centre towards the odd-numbered houses (see figure 4.14). This ensures that the staircase is lit at the first floor landing. Although not visible in the elevation, a sky-light in the roof of *Group I (b)* lights the head of the staircase. Similar staircase and cellar windows are visible in the rear elevation, providing light to the even-numbered properties.

The frontages to *Group I (b)* elevations are not consistent and vary according to row. Those along Long Row (south-west) are similar to *Group I (a)* with small flagstone forecourt. *Group I (b)* elevations along Long Row (north), however, are significantly different comprising individual house garden areas, stone pathway and gritstone sets. This is enclosed by high cast-iron railings and was formerly tree-lined (Smedley 2012, pers. comm.).

The introduction of additional windows within *Group I* elevations represents a fundamental change in the way in which houses at Belper were designed. The placement of these stair and cellar windows marked a move away from consistent symmetry along the row and the introduction of symmetry in every pair of houses. This demonstrates that the practicalities and comfort of living within the house took precedence over notions of conventional Georgian regularity. Yet symmetry was not

ignored completely, as demonstrated in the positioning of the cellar window between the two doorways or the presentation of the garden space. Consequently *Group I* represents a complicated combination of a larger patron investment, higher emphasis on occupant living standards and the juxtaposition of old and new forms of housing architecture.

*Group J: double-fronted elevation*

*Group J* is found exclusively at Long Row (south) and comprises a double-fronted two-storey stone elevation stylistically similar to *Group H* and *Group I* with segmental arched door header and sash windows (figure 4.16). *Group J* properties are set behind a stepped down flagstone forecourt with a stone wall boundary running the length of the elevation. The only exception to this is No.68 which has a shorter boundary area to the east of the doorway so that No.66 has an extended forecourt area. The arrangement appears to confirm the suggestion that No.68 was an earlier building which had been remodelled to fit into the style of the Long Row (south) terrace. Due to the positioning of the windows within the *Group J* houses, two sub-categories are visible, although both were used with the *Group 8* plan-form, as will be seen below (figure 4.17).

*Group J (a)*

Sub-category *Group J (a)* is specific to Nos. 65, 66 and 68 Long Row. Comprising stone houses with off-centre door and asymmetric arrangement of ground and first sash windows, *Group J (a)* is distinctive (figure 4.18). The original arrangement of *Group J (a)* is difficult to determine as all examples of the elevation have been altered. The lack of sill to the smaller of the two first floor windows of No.65 and No.68, for example, possibly demonstrates that the windows were later additions as the houses were sub-divided. However, it is equally possible that a sill was never intended for such small windows. Consequently, a similar window with a sill, as visible at No.66, may have been a latter insertion into the elevation.

### *Group J (b)*

*Group J (b)* are similar to the arrangement of *Group J (a)* with off-centre door and asymmetric ground and first floor sash windows. However, these houses are brick-built and are of different proportions (see figure 4.16). Specifically, there is a closer proximity between the smaller windows of adjacent properties as the lintels touch one another in the elevation. All windows in *Group J (b)* are provisioned with a lintel and sill and are more consistent in size across the elevation than those of *Group J (a)*.

The limited use of a double-fronted elevation and plan-form highlights the costs associated with this type of arrangement. *Group J* properties had a larger foot-print and required proportionally more land for the same number of properties than, for example, the *Group H* houses. For this reason, very few workers' houses are double-fronted, either in the Derwent Valley or nationally. The use of the form at Belper is all the more intriguing given that it appears at the same time as *Groups H* and *I*. However, despite this it has been surprisingly overlooked in research agendas to date.

### *Group K: 'Cluster' elevation*

*Group K* elevations are understood to have been constructed in the late 1810s and show a noticeable difference in the style of housing constructed thus far. Specifically, whilst the style of the door and windows are comparable with *Groups H-J*, their arrangement is distinctively different (see figure 4.6). This is evidenced in the removal of the top floor window from the front elevation to the side and thus resulting in a seemingly elongated first floor space. Each house had a small side extension executed in a style similar to the original façade (figure 4.19). The setting of *Group K* is an important part of the design as each property has a large garden space and pigsty enclosed by a stone wall. The *Group K* elevation was used with a *Group 9* plan-form (see figure 4.7).

### *Discussion of exterior descriptions*

According to differences visible in the exterior form, the above typological assessment identifies five distinct categories of purpose-built workers' housing constructed at Belper. Whilst these categories reveal a diverse range of exterior

elevations they also demonstrate underlying stylistic principles which govern the arrangements. This has led to a number of assumptions regarding the exterior form of workers' housing at Belper. The most influential was made by Chapman (1976, 123) who assumed that since Cromford was the site of the first cotton workers' housing, Belper would have naturally replicated its practices. Outside of Belper, Chapman's (*ibid.*) assertion has largely gone unchallenged and appears in the UNESCO inscription documentation. However, within Belper local historians, such as Smedley (2012 pers. comm.), have long since refuted Chapman's assertion to argue that housing form was derived from the Strutts' own innovations in industrial architecture. The buildings survey undertaken as part of this thesis also argues that Chapman's (*ibid.*) assumption is unlikely. Principally, the types of housing, use of brickwork, tooling on stonework and architectural details (such as the segmental arch door header), indicate that different architectural influences were in operation between Belper and Cromford. However, rather than asserting that these differences were a simple reflection of different patrons, the current author suggests that established Amber Valley building traditions and Derby hosiery industries were also influential in determining the form of Belper's workers' housing.

Whilst Chapman's (*ibid.*) assumption has already been challenged by Smedley (*ibid.*), her own assertion also requires closer inspection. Fundamentally, Smedley's (*ibid.*) interpretation that the Strutts' industrial experience influenced house exteriors is predicated on the assertion that the design of *Groups I* and *K* had earlier architectural parallels in their mill buildings. However, this assertion remains an untested hypothesis and there has been little scholarly interest in assessing the validity of this statement. In contrast, there has been far greater discourse given to the association between the innovative *Groups I* and *K* and the personal ideologies of the Strutt family. This has manifest itself as an assumption that the industrial forms of architecture, and specifically the lack of ostentatious architectural display, when applied to a domestic setting reflected the Unitarian principles of: frugality, functionality and godliness (Smedley *ibid.*).

The use of housing façades to make a statement regarding the ideologies and character of the millowner is well attested by industrial historians. In particular,

Jackson *et. al.* (2010, 11 & 23) have argued that a well chosen architectural style was used as a public declaration of an industrialist's commitment as a moral employer. However, Palmer and Neaverson (2005, 112) have also argued that such actions were more inherently complex, reflecting an employer's eagerness to display his dominant social status to the community as much as his sense of charitable duty. Yet at Belper, the diversity in exterior forms is problematic to this type of interpretation. Specifically, the lack of consistency in architectural style makes it difficult to understand the extent to which the Strutts' intended to use workers' housing as an extension of their personal convictions and social status.

Despite the uncertainty as to whether these properties were a reflection of the Strutts' personal ideology, the various forms were all seemingly compatible with existing worker-management strategies in operation within the mill complex. In particular, Fitton and Wadsworth (1958, 234) have highlighted the use of the premise 'omniscency' as a means of inciting obedience within the mill complex. Given the number of workers in close proximity within the settlement there is a case to be made for its continued relevance outside of the factory setting. Evidence from employee records indicates that the surveillance of workers extended beyond working hours as individuals were punished for infractions that occurred off the factory floor (DRO D6948/9/14) (Fitton and Wadsworth 1958, 234). Thus, the workers' settlement, and arguably the houses, became seemingly a fundamental part of a landscape designed to establish control and monitor workforce behaviour. Yet, the actuality of this type of arrangement is difficult to predict from the surviving building fabric. The relationship between the Strutts', occupants and the use of visual surveillance within the housing appears to be a more complicated system than Fitton and Wadsworth (1958, 234) have described at the mill. The evidence suggests that rather than a uniform system of observation, there was a diverse range of responses according to individual housing rows and situations.

Visual surveillance could operate in two specific ways: direct surveillance by a representative of the Strutts and peer observation between neighbours. As noted in Chapter Three, there was a balance to be established between the effort required to undertake direct surveillance and its effectiveness. At Belper, the disparate location of

the settlement across numerous roads was problematic to the effectiveness of this type of observation. Not only would it have been time consuming but the layout of the rows made the representative vulnerable to observation from occupants. This would have ensured that occupants were able to conceal any undesirable activities ahead of the visit taking place. Given that there were no high-profit outworking arrangements in operation within these houses, it is unlikely that this type of exhaustive surveillance was regularly practised by the Strutts. There is, however, one noticeable exception. At Nos. 4-8 Chevin View the direction of the row and deliberate construction of the garden walling appears to have facilitated clear observation of the properties from the adjacent road (figure 4.20). This suggests that the Strutts deliberately invested in a form of exterior design which enabled direct surveillance at a distance.

The difference between the approaches to surveillance taken by the Strutts at Chevin View and other rows of housing is marked. One possible explanation rests on the type of occupants housed at Chevin View. It has been asserted in the UNESCO inscription documentation that Chevin View housed families in which the head of the household was engaged in nail-making and that this was in contrast to the occupations of those in other rows. This distinction in occupation is discussed in further detail in the subsequent sections, and may explain the decision behind the need for direct surveillance at Chevin View. Consequently, this example demonstrates the importance of considering both occupant and architecture in order to understand the significance of exterior design and daily experiences of living within the workers' settlement at Belper.

The extent to which peer observation was possible also appears to have varied considerably across the settlement. This is evident in the contrast between adjacent properties in Mill Street and the Short Rows. Whilst the arrangement of Mill Street housing along a wide road facilitated easy observation between neighbours, the location of Short Row (middle) down a small track and the high stone walls along Short Row (end) meant that the same level of surveillance was more difficult to achieve (see figure 4.3). Specifically, the construction of stone-walling to *Group H* properties appears to suggest deliberate management intervention to prevent neighbours from observing each other along the row. Consequently, this example



raises the question as whether peer observation was indeed extensively encouraged at Belper or used as a means of settlement management.

The use of walling provided occupants of some *Group H* properties with a greater degree of privacy. As a result, the arrangement subtly contributed to the Georgian ideals of individual home ownership as discussed in Chapters One and Three. Nevertheless, these walls also functioned as a key tool in the management of the workers' settlement. Specifically, the position and height of walling acted as a barrier to conversations between neighbours and especially those held in the doorways of adjacent homes (figure 4.21). Consequently these walls modified the behaviour of occupants by minimising peer interaction to segregate or isolate individual households. When contextualised against the methods of surveillance in operation within the settlement, it is evident that the use of walling functioned as a crucial element of landlord/employer control. At Short Row (end) and Field Row, where direct or peer observation was difficult, the Strutts used walling to effect changes in the character of the occupants by manipulating their social interactions. This would have weakened the overall unity felt by tenants and was therefore advantageous to the Strutts in maintaining control. However, at Nos. 4-8 Chevin View, where direct surveillance was possible, the use of walling appears first-and-foremost as an affirmation of the Strutts as omniscient. In other words, at Short Row (end) and Field Row walling is used to enforce an improvement in the moral character of the occupants, whereas at Nos. 4-8 Chevin View it is used to enforce the notion of landlordly dominance over the occupants. Thus, the choice of walling solution at Belper produced discrepancies in the lived experiences of different tenants. Evidently, the Strutts subtly adapted their exterior designs according to how they perceived the different requirements within the settlement.

With the exception of Field Row, by the mid-1790s the use of high walling to front workers' housing appears to have fallen out of favour. The introduction of lower walls at Long Row (south) and iron railings at Long Row (north), Crown Terrace and Long Row (south-west) suggests a change in architectural fashions for the way in which house boundaries were demarcated (see figure 4.4). Noticeably these new forms of boundary marker were all attached to the unusual or innovative types of workers'

housing, such as the L-shaped or double-fronted arrangements. By contrast, the more conventional Field Row was constructed with the old-style high walling, similar to the earlier phase of Short Row (end). Crucially, whilst the old form of high walling had disrupted the scale of the earlier housing rows to give the impression of a series of individual accommodation units, these new forms of boundary emphasised the whole row as a single impressive façade. Consequently it accentuated the magnitude of the mid-1790s house-building schemes and the ‘industrial’ nature of the settlement. The choice of boundary, therefore, appears to have been part of a deliberate policy by the Strutts to promote their innovative housing and establish themselves publically as pioneering landlords/employers. This trend continued into the nineteenth century with the construction of low walling around the Cluster houses.

It is evident that the diversity in the exterior forms of workers’ housing at Belper was a complex response to a series of individual circumstances facing the Strutts in the 1780s-1810s. Fundamentally, there was a piecemeal transition from more conventional forms of housing in the 1780s to more innovative stylistic arrangements by the mid-1790s, resulting in a disparate settlement across several locations. The modest brick-built arrangements of the earliest housing at Mill Street and the Short Rows reflected the fact that they housed families of unskilled mill workers. As a result, this first phase of housing was constructed without the impetus to attract skilled labourers to a new rural site and therefore represented a functional, fit-for-purpose design which facilitated a self-regulatory community setting.

The introduction of new forms of exterior design in the mid-1790s, with the construction of Long Row (north), Long Row (south-west) and Crown Terrace under William Strutt, represented a change in the style of workers’ housing at Belper. Unlike the earlier forms these houses did not have local precedent and occupied a more visible location closer to the main thoroughfare. This suggests a greater degree of patron confidence in house-building as well as an increased appetite for public display. However, the presence of more conventional forms of housing at Chevin View, Long Row (south) and Field Row, indicate that settlement development was more complex than a simple representation of the aspirations of the patrons. The variation in exterior form appears to replicate the diverse origins of the workforce

employed by the Strutts, such as the nail-making families at Chevin View. This indicates that there was a degree of tailoring house-design according to the requirements and management of those employees as tenants. Ultimately, as the identity of the occupants within the workers' settlement was not homogeneous, a standardised solution to housing could not be applied. Therefore, the exterior form of these houses reflected a more active negotiation between the Strutts and the diverse occupant community these properties housed.

### **Interior Descriptions of workers' housing in Belper**

Interest in the interior form of workers' housing at Belper has not extended beyond comment on the more innovative and unusual arrangements of the L-shaped and Cluster house designs. This situation was also noted in regards to Cromford, as outlined in Chapter Three. At both sites, a combination of ownership issues and conventional industrial research paradigms has culminated in limiting the appeal of workers' houses to scholars. At Belper, where the focus has remained fervently on the personal ideologies and character of the Strutt family, the mere presence of workers' houses has been sufficient enough to support the dominant hagiographical accounts. Consequently, previous academic assessments have failed to consider the workers' housing as an element of industrial material culture in their own right. This has resulted in an unsatisfactory situation where extremely generalised accounts of property interiors have been created from documentary sources and fail to consider the surviving building fabric. Consequently, such accounts lack comment on the social and cultural impact of domestic architecture and are highly problematic in overturning existing patron-led agendas. As a result it has been assumed that the Strutts, just like Arkwright, acted benevolently to provide occupants with a 'higher than average' standard of living.

The following section of this chapter offers a detailed interior assessment of workers' housing at Belper and sets out to examine the daily lived experiences of its occupants. Following the model established at Cromford and outlined in Chapter Three, this assessment uses a detailed archaeological survey of the building fabric to determine occupation patterns within the housing interiors. Consequently, where possible, this

appraisal continues to consider the provision of warmth, interior access, cellar, ceiling and floor arrangements within workers' housing.

Within all rows, the vast majority of houses had undergone some degree of alteration, largely comprising new flooring, ceilings, plasterwork and fenestration. Changes appeared at specific points throughout the history of the settlement, such as during the early-mid twentieth century as properties were purchased from the Strutt estate. This reflects occupiers-turned-owners who wished to make their own improvements either to personalise the houses or because the Strutt estate had not kept renovations up-to-date. It is also apparent that following the formal listing of the majority of workers' housing in the 1960s and 1970s, a considerable proportion of properties were modified *after* designation had taken place and often without official documentation. Seemingly, the substantial local, council and academic focus on the exterior of these houses has contributed to this phenomenon as many occupiers remained unaware that the designation affected the interior of the property rather than just the streetscape, or as one resident quoted;

*“they [the council] are only interested in the fronts [of the houses]... so the tourists can see”* (Mill Street homeowner 2011).

The intensity of alteration to properties is directly proportional to the conventional perception of their historic importance, as outlined above in the preceding sections of this chapter. Mill Street and the Short Rows are some of the more extensively renovated, as alteration to these houses has not raised much objection at a local level. In addition these properties are also the smallest and as such have had the most aggressive extensions added in order to provide additional space for occupiers. The effect of modern alteration is less observable in the majority of the stone-built properties at Long Row (north), Long Row (south-west), Crown Terrace and Chevin View. Not only are these houses bigger than Mill Street and the Short Rows but they have generated greater historical intrigue which has fostered a higher level of respect for the building fabric amongst homeowners. As a result, there are notable elements of the interior fabric which have been deliberately preserved. Fireplaces, for example,

are one of the most commonly retained elements within interiors. During survey work undertaken as part of this thesis, the ground floor fireplace was identified by homeowners as the single most important ‘character feature’ within the properties. Other elements were frequently retained due to their durability, such as early-nineteenth century doors, locks and staircases. Consequently whilst renovation has removed much of the original decor and decorative schemes, there remains enough information to discern the original interior arrangements of all properties.

### *Internal plans and arrangement*

A systematic investigation into the interior form of workers’ housing at Belper has established similarities both along rows and between certain terraces. The repetition of housing units with regular dimensions and styles created standardised internal forms. Duplicating the same interior would have been an easier, quicker and cheaper way of building. As a result, the houses can be easily categorised according to plan-form, as listed. As with the classification of the exterior form of housing above, it should be noted that this typology is a continuation of the form used at Cromford (Chapter Three) and therefore starts with *Plan 5*. This is to enable inter-site comparisons of housing forms without confusion or duplication. Clear linkages between housing groups have been established in Appendix 1.

### *Plan 5: The simple block row*

This category of housing is the simplest form of unit seen at Belper. The properties are either two or three storeys high, with a single heated room on each floor and are present at Mill Street, the Short Rows and Field Row (see figure 4.10). Situated in rows, *Plan 5* arrangements have windows to the front and back elevations and direct access to the front and rear of the properties. Originally the staircase ran along the side elevation and in some rows was partitioned off from the ground floor room with lath-and-plaster walls, as in Short Row (end) properties.

The majority of *Plan 5* houses have been extended to the rear. These extensions vary extensively and demonstrate a combination of coordinated programmes of work undertaken by the Strutt estate (Mill Street north, Short Row end and Field Row) as

well as individual projects constructed after the housing was sold into private ownership (Mill Street south and Short Row middle). In the majority of examples the extensions provided a separate kitchen and bathroom and denote changes in expected living standards during the late-nineteenth and early-twentieth centuries. The late introduction of these to the properties indicates that once built the Strutt estate did not reinvest in upkeep. Consequently many of the improvements made were either legislative or occupant-driven.

*Plan 6: The back-to-back row*

Not extensively used in Belper, *Plan 6* houses only appear briefly in the early 1790s with the construction of Chevin View and the former Lion Terrace (see figure 4.12). Single units of the *Plan 6* properties are identical to the three-storey version of *Plan 5* houses, with a heated room on each floor and access via a straight-flight staircase.

During the mid-nineteenth century a series of single storey kitchen extensions were added to the western row of back-to-backs at Chevin View, but not the east. These appear to have been constructed as part of a coordinated programme of work by the Strutt estate. In the 1930s four out of the five pairs of properties were transformed into ‘through-properties’ and the staircases in the former-eastern row was removed. The living area of the former-western row was converted into a kitchen and the small single storey kitchen extensions were made into scullery rooms.

*Plan 7: The ‘L’-shaped row*

*Plan 7* houses are present at Long Row (south-west), Long Row (north) and Crown Terrace (see figure 4.5). This category of arrangement uses the basic *Plan 5* form of single heated room on each floor; however, it differs in that the ‘U’-shaped winder staircase projects out to give an unusual ‘L’-shape. This means that every two properties are interlocking either against the front or rear elevation. Situated beneath the staircase, *Plan 7* properties have a small semi-subterranean cellar with stone thravls placed against the wall. It is possible that these cellars were constructed only as the result of additional foundations required to make the staircase towers structurally sound.

A series of rear extensions reveal that *Plan 7* houses were altered by the Strutt estate in the nineteenth century. These provided a separate kitchen, bathroom and in some configurations an additional first floor bedroom. The variations in form of extension between Long Row (south-west), Long Row (north) and Crown Terrace are indicative of different phases of work, suggesting that the improvements were undertaken gradually.

*Plan 8: double-fronted row*

Appearing only at Long Row (south), the use of a double-fronted plan is restricted to the mid-1790s. *Plan 8* properties have been heavily modified with a later-nineteenth century gabled extension to the rear (see figure 4.17). Unfortunately this phase of extension work has obliterated much of the earlier form of the houses and original elements, such as the staircase and configuration of the first floor, remain speculative. The original form of the ground floor is more discernible comprising a type of baffle entrance and two unequally sized ground floor rooms, the living room and a large food storage area (possibly subdivided into a coal store and pantry). This type of entrance was needed as it allowed both ground floor rooms to be lit by exterior windows.

The later-nineteenth century extension was coordinated by the Strutt estate and detailed plans of the work have survived (DRO D1564/S167). These reveal that the extension created a rear kitchen to the ground floor, new staircase and additional first floor bedroom. The plans also indicate where the original staircase may have been positioned against the rear corner as a winder staircase, using the original rear door as an access point. The subsequent investment in the Long Row (south) properties at the end of the nineteenth century was quite substantial and was far greater than the level of investment for other rows of workers' housing within the settlement. This makes Long Row (south) exceptional by the standards of the Strutt estate.

*Plan 9: The Cluster house*

This house plan is the latest arrangement used at Belper and appears from the mid-1800s as the Cluster houses (see figure 4.7). Essentially the form is similar to the *Plan*

7 houses with single heated room on each floor, winder staircase and under-stairs cellar. *Plan 9* houses have a small early-nineteenth century side extension, which provided a separate kitchen and additional bedroom space. These extensions have been wrongly attributed to part of the original design of *Plan 9* properties as they are visible on the 1805 Estate map (DRO D1564/3). However, as they do not appear on a more detailed plan of *Plan 9* houses (DRO D1564/S21) it is evident that they were constructed soon afterwards. This demonstrates that the Strutts reinvested in these properties shortly after they were built. It is therefore possible that the original form, as per the architects plan, was soon found to be inadequate for the needs of the occupants.

The above study of interior arrangements of workers' housing at Belper proposes a classification of five distinct groups. This is the same number as the categories identified during the typological assessment of the exterior elevations (discussed above). Thus at Belper, each exterior group can be linked to its own specific type of interior arrangement, with the exception of *Group H* which was used with two plan-forms, *Plans 5* and *6*. A visual representation of the linkages between exterior and interior types is shown in figure 5.35a. The current author argues that the close linkage between specific exterior and interior forms seen at Belper reflects a process by which housing types were designed individually as a series of discrete projects. This suggests house-building was reactive to socio-economic factors specific to Belper, such as the diversity of the occupant community and available finances as well as raising the possibility of two patrons commissioning the work (Jedediah and William Strutt). Between types there were significant differences in the interior access, provision of warmth and quality of fittings. The following section examines these differences to demonstrate how they affected the lived experiences of occupants.

### *Internal access*

As discussed in Chapter Three, the way in which occupants move within the domestic space forms an integral part of any assessment into the privacy, functionality and living standards of workers' housing. Establishing the conditions under which access was governed is therefore crucial in understanding the way in which workers' housing



functioned to support industry and habitation (Campion 1996, 847). This is particularly pertinent to the study of examples at Belper, as there is considerable variation in the quality and design of staircase arrangements and the division of rooms. This next section will now consider the interior access of workers' housing at Belper and the character of movement between floors.

### *Staircases*

The staircases seen in workers' housing at Belper can be arranged into four categories: stepladder, straight-flight, 'U'-shaped stairwell and the 'cluster' house staircase. The first three categories of staircases were positioned against the side elevation on the opposite side to the fireplace so that noise from footsteps on the stairs was restricted to one end of every two properties along the row. In all cases, however, the staircase was located on the opposite side to the fireplaces as this allowed the greatest flow of warm air within the room and retained the most amount of heat between floors (see figures 4.10, 4.12, 4.5, 4.17 & 4.7). Despite the consistency in placement within the houses, the form and quality of the staircases was revealed to be very diverse.

In the first phase of workers' housing (1780s) the original character of the staircase is difficult to discern. At Mill Street (south) and Short Row (middle), a mixture of modern balustrades, machine-cut matchboarding and gypsum plasterwork indicates that all viewed examples were twentieth century. The scale of variation is indicative of having been undertaken by individual households after the properties were bought from the Strutt estate and implies that the original versions were deemed inadequate. Reasons vary as to why staircases were replaced; however, in smaller terrace properties this tends to occur only with structural failure, such as through rotting wood or woodworm, or where the staircase poses a safety risk, for example if the treads are too narrow or the pitch is too steep (Lilley 2011, pers. comm.).

Within these properties, there is some evidence to suggest why the original staircase arrangement was systematically replaced. The presence of a near vertical scar in the side elevation at the head of the staircase of properties in Mill Street indicates an earlier staircase arrangement (figure 4.23). The pitch and gradient of these marks are

consistent with the use of a wooden stepladder as a semi-permanent staircase and is comparable to other examples, such as the cock-loft arrangement in eighteenth century loom-weavers' housing at Florida Street, London (Guillery 2004, 110). This type of access is synonymous with cheap construction, a small interior and prioritising workshop space over domestic arrangements. Rather than indicating the presence of a workspace, the inclusion of this type of staircase in Mill Street (south) and Short Row (middle) houses is likely to signify that the arrangements were not heavily invested in. It is probable that a combination of limited finances and the need for immediate additional accommodation meant that the speed of construction was a priority in choosing the staircase type.

For the occupants this form of stepladder-staircase would have had a dramatic impact on daily life. The position of the stepladder within the living room meant that there was open access between the two floors of these houses. This meant that draft and noise would have travelled easily, reducing the privacy between occupants. Furthermore, as there was no formal demarcation of the staircase area, the arrangement was not externally-lit but relied upon existing light within the rooms. This would have been especially problematic in Short Row (middle) housing as the first floor window was particularly small and could have resulted in a dangerous situation. Anecdotal evidence, collected by Dodd (n.d. 16), suggests that a trapdoor may have been added to at least one of these properties, indicating that occupants were aware of the dangers of a stepladder arrangement. What is not certain however, given the level of subsequent alteration to the fabric of these buildings, is whether this example was an isolated addition. Without supporting documentation it is also difficult to determine if the trapdoor was installed by the tenant or Strutt estate, the date the trapdoor was added and whether it was inserted after an accident or as a preventative measure.

Set apart from the other 1780s housing rows, Short Row (end) properties had a different staircase arrangement, comprising a straight-flight partitioned from the ground and first floor rooms with a lath-and-plaster dividing wall (figure 4.24). The consistency of this arrangement is indicative of an organised programme of works, with wooden latched door at the foot of the staircase and eighteenth century iron-

framed skylight illuminating the stairwell (figure 4.25). The arrangement increased the sense of division and privacy between the floors and was safer, with a gentler pitch and exterior lighting source, than the stepladder form. As such this type of staircase represented a greater financial investment and higher standard than noted in Short Row (middle) and Mill Street. The Short Row (end) houses are likely to have been the last row constructed as part of the first phase of house-building in the 1780s, which therefore suggests that an adequately lit staircase was becoming an increasingly important element in housing design. As these Short Row (end) properties commanded a higher rent, the use of this type of staircase also suggests that the Strutts were offering higher standards of living to those tenants who were willing to pay additional rent for better fixtures. The continued use of the straight-flight partitioned form of staircase in the early 1790s housing at Chevin View and later properties along Field Row, is indicative of its success. Furthermore, the development of the stairwell in the next phase of housing in the late-1790s, demonstrates a sustained trend for well-lit and partitioned staircase arrangements.

The second phase of house-building in the mid-late 1790s marks the introduction of a new form of staircase to Belper. The 'U'-shaped design first appeared at the second of the Strutts' cotton workers' settlement, Milford (Chapter Five), in the early 1790s before being used at Crown Terrace, Long Row (south west) and Long Row (north) (figure 4.26). Unusually, the 'U'-shaped stairwell formed a structural element of the housing design and created a very effective staircase solution. Firstly by positioning the staircase back-to-back, to create the 'L'-shaped plan (*Plan 7*), the arrangement facilitated movement between floors without much intrusion into individual rooms (see figure 4.5). Secondly, it reduced the noise of staircase traffic to one end of every four houses and therefore contributing to the quality of daily living standards. Finally, the staircase could be adequately lit at every landing through carefully positioned exterior windows. Consequently this form appears to have been driven by a desire to maintain high quality adequately lit staircases and provide workable solutions for occupants.

The lack of local precedence for this type of staircase has sparked speculation that the properties were designed by William Strutt as he experimented whilst developing his

engineering skills (Smedley 20112 pers. comm.). It is a credible assertion and supported by the slight design variations which exist between the housing rows, indicating that no firm model had been established. These differences are most notable in the arrangement of windows within the stairwell. At Crown Terrace the stairwell was lit from the second floor landing via a small iron-framed window, whereas Long Row properties were lit at both landing levels using a small window and skylight (DRO D8948/8/3) (figure 4.27). This suggests the Strutts trialled various arrangements to establish the most cost-effective but efficient method of lighting the stairwells, possibly through dialogue with occupants.

Similarly to the staircase form at Short Row (end), Field Row and Chevin View, the 'U'-shaped design was partitioned from the ground floor room by a lath-and-plaster wall and wooden latched door (figure 4.28). This served to separate the living area from the sleeping areas above. In contrast, at first and second floor levels the staircase opened directly into the rooms. However, the position of the staircase to the corner of the properties helped to preserve a sense of privacy as floors could be accessed without walking through large portions of the rooms. The arrangement strongly indicates a high level of consideration for the way in which occupants used the house; at the same time the form also represented a greater financial investment than the straight-flight staircase. This investment continued with the provision of conventional staircase furniture, which comprised a simple timber-framed winder with central three vertical uprights, plain balustrade and simple curved handrail (see figure 4.26 and 4.29). Frequently the underside of the staircase had been plastered and painted white in order to reflect the most amount of light down the stairwell (figure 4.30). Yet, whether this reflects an original decorative scheme is unclear. Fitton and Wadsworth (1958, 249) discovered accounts which revealed an extensive programme of whitewashing to interior walls of the properties; however, as rooms are not itemised it is difficult to conclude that the staircase was part of this process.

Use of a closed form of staircase continued into the 1810s with the construction of the Cluster houses. In order to incorporate a stairwell into each quarter of the property, the staircase comprised a straight-flight with lath-and-plaster partition and latched wooden door between ground and first floor and a winder between first and second

floors. Once again this form of staircase gave a greater degree of separation between ground and first floors, resulting in privacy between living and sleeping areas (see figure 4.7). This is in contrast to the levels of privacy between the first and second floor sleeping areas as the staircase opened directly onto both floors, similar to the earlier 'U'-shaped form. However, unlike the properties along Long Row (north) and Crown Terrace, the staircase arrangement used in the Cluster houses was not lit via exterior windows, instead relying upon light from the bedrooms. This reduced the privacy of the occupants at these properties. This is most clearly evidenced in the provision of a single second floor window at the head of the staircase to simultaneously illuminate both the attic room and the stairwell, thus enforcing an open bedroom arrangement. Seemingly, therefore, by the 1810s the Strutts were looking to make increasing financial savings in the expenditure of workers' housing. As a result, the quality of lighting in the stairwell and the privacy brought to the Cluster houses was arguably less successful than seen in the earlier 'L'-shaped properties.

The development of the staircase within Belper houses reveals a transition from ephemeral poorly-lit stepladder to well-lit and substantial arrangement. Specifically, these houses reveal a withdrawal of the staircase from the ground floor room as it was partitioned off to become a separate area of the house. This marks a more general transition to separated living and sleeping areas and appears to demonstrate the commitment by the Strutts to providing adequate and suitable accommodation responding to occupier needs. Changes to the staircase therefore parallel the wider transformation of the domestic sphere, visible as the increased division of interior space through the partitioning of existing rooms. This indicates that privacy and the separation of both the household activities and members became an increasingly important concept in workers' housing.

### *Room divisions*

The sub-division of workers' housing at Belper often occurred in the mid-nineteenth century and was somewhat formulaic in that it most frequently facilitated independent access to bedrooms spaces from a central landing area. The desire for independent

access between rooms is most notable in the construction of rear extensions, such as those at Long Row (south-west), in which available floor space was compromised by the use of long corridors in order to gain the desired bedroom areas (figure 4.31). This type of transformation to the interiors of workers' housing was staggered throughout the settlement as some rows were altered before others. Long Row (north), Long Row (south-west), Crown Terrace and the Cluster houses were all altered before housing along Mill Street and the Short Rows. This suggests a link between tenants paying a higher rent and those prioritised for home improvements. Yet, a more in-depth investigation of the surviving building fabric shows a wider degree of variation to the types of room division created within the properties. As such the evidence more strongly indicates that occupants undertook these changes themselves rather than relying upon the Strutt estate.

The increased partition of rooms by the early-to-mid nineteenth century, with a focus on dividing the sleeping areas, is also noted at Cromford and indicates that at both sites occupants were looking for increased privacy. One catalyst for this appears to be the changing composition of the household over the century. As Collier (1964, 34-35) and Timmins (2004, 97-98) note, by the mid-nineteenth century the practice by occupants of sub-letting rooms was commonplace as a means of securing financial revenue either over prolonged periods or as a result of temporary hardship. At Belper the composition of the households is only apparent from the 1840s onwards in information gathered by the Census records. This document reveals that housing was occupied by a combination of larger extended families, journeymen and lodgers. In particular, the three-storey properties in Long Row and Crown Terrace, housed a number of individuals, especially children, with different surnames to the head of the household/main family unit. There are many scenarios under which this could occur but it appears to be a deliberate tendency for children of working age to be lodged with families employed at the mill. This is, therefore, reflected in the sub-division of housing at first floor level. Whilst having a large open attic space as a bedroom dorm would have been more appropriate for the children, the adults of the household, lodgers and members of the extended family needed more private bedroom spaces. A similar, but less pronounced, patterning is visible in the records for Mill Street, the Short Rows and Chevin View and suggests that such arrangements were ordinary.

Returning to the assertion that these sub-divisions were instigated and coordinated by individual occupants rather than the Strutt estate, this then raises important questions regarding the Strutts' role in the upkeep and maintenance of their houses. It is possible that alterations to the interior arrangement of rooms were not seen by the Strutts as imperative in providing suitable accommodation for workers and therefore not a cost to be incurred by them as landlords. However, given the evidence, it seems that they were content for the changes to be made if the occupants took on the work/costs themselves. This semi-autonomous arrangement has also been discussed in the preceding section in relation to the exterior form of housing and patterns of casual surveillance. Consequently, it is evident that the Strutts, as patrons, were not looking to closely govern their occupants but supply forms of housing which would encourage or facilitate a steady and reliable workforce.

#### *The provision of warmth*

As Chapter Three has already discussed, the provision of warmth within workers' housing is frequently used as an indicator of the quality of accommodation. Without exception the Strutts' housing at Belper had been designed with a fireplace in every original room, something that was made easier due to the construction of houses in rows. By building in terraces the cost of construction was reduced, as the bricks needed per house were shared in party walls. In siting the chimney breast on these party walls, back-to-back, the quantity of materials needed was further reduced. This arrangement was most effective when placed along the wall opposite the entrances into the house as it prevented through-draft and conserved heat. Thus fireplaces could be added within houses in a manner which was both affordable to the Strutts and gave a good source of heating for the occupiers.

Complications in using the back-to-back chimney breast arrangement seem to have been encountered at Mill Street and Short Row (middle) as the gradient of the hillside may have been sufficiently steep so as to bring into question the suitability of the design. Here it was thought necessary to add an additional projecting buttress against the chimney breast, observable in Mill Street (south) (figure 4.32). That this arrangement does not appear at other rows says as much about the gradient of the

hillside as it does about the quality of the building work itself. As these represent the first phase of houses at Belper there was no precedent for this arrangement and the stability of the land was not yet proven. The builder, perhaps due to his own inexperience, took a 'belt-and-braces' approach and in order to minimise the risk of houses slipping under the weight of the chimney breasts, the additional buttressing was added.

Within Strutt housing, the largest fireplace was found in the ground floor room and positioned off-centre in the side elevation (figure 4.33). This situation occurred because, presumably in an effort to reduce materials, the chimney breast was not deep enough to accommodate the flues of two houses if placed back-to-back. The ground floor fireplace conforms to a general style which appeared across all types of housing. These fireplaces comprised plain stone lintel and fine vertically chisel-dressed jambs which sat directly on the original floor surface and within a brick chimney breast (figure 4.34). The choice of fireplace reflects a local style and methods of construction. Where the original brick fireback has been retained, for example No. 45 Short Row and 30 Long Row, the presence of blocked-flues and blackening to the upper third is consistent with the use of a small open range (figure 4.35). No recorded example survives *in-situ* at Belper; however, a larger version dated from between 1780-1790, was recorded as part of the Batheaston Historic Buildings Survey project (figure 4.36) and shows similar soot patterns in the fireback. Other elements relating to cooking paraphernalia, such as a handle-shaped piece of metalwork within the inner face of each jamb are almost identical to North Street, Cromford (Chapter Three).

Subsequent alterations to the form of many fireplaces denote nineteenth century schemes of fireplace upgrade. For example the vast majority of the jambs across all workers' housing appear to have been deliberately tapered to the bottom third along the interior surface, in order to allow a larger closed range to be installed (figure 4.37). For a similar reason, some fire surrounds, such as No.17 Mill Street, No.25 Long Row, appear to have been rebuilt with an additional brick course added between the jambs and lintel in order to allow a domestic fireplace to be installed (figure 4.38).



These have been subsequently removed as central heating was introduced and small gas fires added.

Although the alterations made to the fireplace, as outlined above, reflect changing fireside technology, other modifications are more difficult to interpret. The addition of a small semi-circular indentation in the external face of the rear jamb presents one such challenge (figure 4.39). Often found in association with a brick segmental arched recess above, such as No.18 Long Row, anecdotal accounts have suggested that the arrangement is the remains of a bread oven in the corner of the ground floor room. However, it is difficult to substantiate this anecdotal account in the fabric of the building. Firstly, the arrangement of flues within the houses does not support the presence of an additional oven feature. Likewise, its universal removal from each house in Belper is difficult to equate with the high retention rate of other historical building fabric within these properties. Furthermore, the cost of installing a bread oven in each property would have been enormous for the Strutt estate to bear. Finally, the buildings accounts for properties in Long Row (north) only refer to the purchase of ovens as part of the elements of a range oven, including cast boilers, cast hearth grates, dampers, mouthpieces and associated grates (DRO D8948/8/3). There is no mention of additional ovens or bread oven arrangements.

Within the nineteenth century ground floor extensions of workers houses, the presence of an additional fireplace demonstrates that these rooms were used as a kitchen and scullery area. However, the position of the fireplace varied according to individual rows. In Crown Terrace, they are placed against the side elevation whereas at Long Row (south-west) and Long Row (north) the location varies between individual houses, either being located in the side elevation or in the corner and against the living room (figure 4.40). Additionally, a later-nineteenth century plan of No.7 Long Row (north) reveals that at least some of these back rooms were originally provisioned with an in-built copper boiler situated in the corner. No. 77 Long Row has one of the best preserved examples of a mid-nineteenth century cast-iron range with single oven, central grate, hot water container and smoke hood (figure 4.41). It is possible that this type of range is responsible for the origins of the bread oven anecdote within Belper houses. These nineteenth century ranges do not have a visible

maker's mark which tentatively indicates that they were made 'in house' by the Strutts and presumably in their nearby Mackney forge at Milford (see Chapter Four). It is presumably as a result of these new ranges that the original late-eighteenth century versions were removed from the ground floor front room as the space was transformed into more of a designated living area.

Fireplaces in the first and second floor rooms are not as well accounted for in Belper as the majority were removed when central heating was installed into properties during the mid-twentieth century. Similarly to Cromford houses, in many cases upper floor fireplaces are now often only recognisable as blockings within the chimney breast and by the presence of a hearth against the floorboards. This is especially the case in smaller properties, such as Mill Street, the Short Rows and Long Row (south), where the removal of the bedroom fireplace created enough additional space for a modern double bed *and* wardrobe to be positioned within the room. The position of the first floor fireplace is visible in the ground floor room as a curved brick arch projecting out from the chimney breast (figure 4.42). It is an arrangement which occurs in all types of workers' housing and is necessary because the first floor fireplace is not vertically aligned with the ground floor fireplace and additional structural supports were needed. In properties where the first floor fireplace and hearth have been removed then the curved brickwork is often taken out and the chimney breast straightened. When this happens, only the timber ceiling beams reveal the position of the former hearth (figure 4.43).

One of the most frequently observed styles of first floor fireplace looks like a small version of the ground floor arrangement with plain stone lintel, dressed stone jambs and hob-grate inset (figure 4.44). This fireplace is almost identical to the type used in the second floor bedrooms of North Street, Cromford (Chapter Three). Although commonplace in the 1790s houses, evidence from No.15 Mill Street suggests that it was not used in the earlier 1780s properties. Recent renovation work at this property revealed a small segmental arched brick fireplace used in conjunction with a hob-grate within the first floor bedroom (figure 4.45). As all other examples of 1780s properties have been modified with later nineteenth century cast-iron insets, it is difficult to determine how representative No. 15 may be.

Mid-to-later nineteenth century cast-iron insets are the most common form of fireplace within the upper floors of all housing rows and presumably reflects a programme of upgrade with the development of the more heat efficient register grates from the 1800s onwards. As a result very few original late-eighteenth century hob-grate insets have been retained. Of the nineteenth century cast-iron insets surveyed as part of this thesis, a clear repetition of designs was visible. An arched inset with laurel wreath decoration was present at Long Row (north), Mill Street (north), the Short Rows, Crown Terrace and Chevin View (figure 4.46). In contrast, the predominant design in Cluster houses properties was an arch inset with pine surround and mantel shelf (figure 4.47). This latter style appears to reflect a greater financial investment; however, whether this translates into differences in social status is difficult to predict and would only be representative of the period at which the fireplace were purchased and inserted in the house. The frequency of designs within the houses strongly suggests that the fireplaces were inserted as a coordinated programme of upgrade undertaken by the Strutts and purchased from a single source. Consequently, in contrast to the sub-division of housing, improvements in fireside technology appears to have been part of the maintenance work the Strutts were willing to continue to invest in during the nineteenth century.

#### *Flooring, ceilings and doors*

Within workers' housing at Belper the majority of the original flooring, ceilings and doors had been replaced, although a significant number of houses still retained at least a proportion of these original features. In all housing rows it was the ground floor which showed the most alteration. Through a combination of changing fashions and wear, the original flooring was only visible in a handful of examples across the settlement. The largest concentration was noted in Long Row (north) properties where the original quarry tiles were frequently retained (figure 4.48). The purchase of these tiles in the six brick houses in Long Row (north) is recorded in the buildings accounts (DRO D6948/8/3) as "600 floor bricks", "3000 floor bricks" and "9950 inferior floor bricks". Similar records for a consignment of "6700 paving bricks for floors" are listed in the building accounts for the stone properties along the row. Without documentation and in the absence of *in-situ* examples from other rows, it is difficult

to determine how extensively this type of tile was used. However, given the numerous clay deposits, potteries and brickworks in the Amber Valley it seems likely that tiling was the cheapest form of flooring available to the Strutts.

The flooring to the first and second floors of workers' housing was consistent, comprising large timber planking running across the ceiling joists and secured by square-head Belper nails. Although this type of flooring was noted in all rows, in the majority of examples surveyed this had been replaced with later machine-cut boards. Replacing broad floorboards is not uncommon, either as a result of woodworm, changes in fashion or warping due to broadness of the original eighteenth century planks (Lilley pers. comm. 2011). Of the properties only No.10 Mill Street showed evidence for repair rather than replacement to the original boards as two dents in the flooring had been covered over with metal plates (figure 4.49). The origin of the indentations is not fully understood but appears to be the result of repeated scuffing or hitting the floor. Such marks are sometimes noticed through the use of spinning or loom machinery but it is speculative to suggest that this occurred in this instance.

The ceiling joists within houses have not been as aggressively altered and so give an accurate account of the arrangement as constructed. For example, the joists surveyed in houses along Long Row (north) are matched by the description of timber sizes given in the associated building accounts (DRO D6948/8/3). Taken collectively the houses across the settlement demonstrate that ceiling joists were inserted following two different building traditions. This variation is consistent with the hypothesis that different building teams worked on separate housing rows as individual contracts. In Mill Street, the Short Rows, Field Row, Long Row (south) and the unaltered Chevin View properties, joists run front-to-back. However, in 'knocked-through' Chevin View properties, Long Row (north), Long Row (south-west) and Crown Terrace, joists run across the house. In all visible examples the roof structure was supported on two roughly cut purlins. The arrangement of the roof structure is most clearly seen during renovation work at No.15 Mill Street, which shows the use of weather boarding below the slates (figure 4.50).

Interior doors within the Strutt properties are a good indication for the date at which internal partitions were added. Reflecting the interpretation that the sub-division of these houses was a piecemeal arrangement staggered across the rows, the style of doors used is equally diverse. Original eighteenth century doors were only visible in a few contexts and where the room arrangement was part of the structural integrity of the building and therefore could not be altered safely. Consequently, the three-plank staircase doors along Long Row (south-west) were all original (see figure 4.28). However, eighteenth century doors were also reused after alterations to the houses had taken place. This is evident in Short Row (end) properties where the original doors were modified to fit the early-nineteenth century rear extension (figure 4.51). The repartition of this arrangement suggests that a coordinated process of architectural salvage and storage occurred, presumably instigated by the Strutt estate. As a result, interior doors, such as the example at No. 38 Short Row, were frequently observed to have a series of obsolete hinges and latches still attached (figure 4.52).

#### *Cellars, Fixtures and Outbuildings*

The selective provision of cellars within workers' houses at Belper from the mid-1790s onwards demonstrates the close relationship between the design of accommodation and the practical necessities of the construction process. The appearance of cellars in the 'L'-shaped properties provides a case in point. On the one hand, these cellars were an unintentional consequence of the deep foundations dug to support the stairwell above. However, the act of formalising the cellar through the inclusion of a window in the ground floor front elevation reveals that the Strutts had fully incorporated it very prominently into the housing design. Consequently this cellar arrangement reveals that the house-building policy operated by the Strutts was both pragmatic and opportunistic in nature but also highly strategic and calculating as the family looked to present themselves as successful industrialists.

The cellars within the 'L'-shaped properties comprise a flight of stone steps leading down to a series of large stone thrawls (stone slab to keep the food cold) and represent a high level of investment (figures 4.53 and 4.54). Similar stone thrawls are found throughout rural Derbyshire and semi-subterranean storage areas are also noted in a

variety of hillside buildings, with high concentrations in the Amber Valley and Derbyshire Dales regions. After the introduction of cellars at Crown Terrace (c.mid-1790s), the provision of a designated food storage area became standard in the design workers' houses, although not always within a subterranean setting. At Long Row (south) the ground floor was originally sub-divided into two unequal sized rooms so that the smaller one provided a food storage area (Farmer 2013, pers. comm.). This room had a series of stone thrawls along at least two of the walls and was stepped down from the main room which means that it was cooler (Farmer *ibid*). Again, this food storage area was externally lit by windows in the front and rear elevations (see figure 4.17). The construction of the Cluster houses in the 1810s, saw the food storage area return to a semi-subterranean cellar beneath the staircase. Given the plan of the Cluster houses, this under-stair arrangement offered the most practical and efficient way to include a food storage area without encroaching on the limited living space. Unfortunately, the later side extensions of these houses mean that it is not possible to determine whether these spaces were illuminated by an exterior window.

The absence of cellars at Mill Street, Short Row and Chevin View properties appears to reflect the lower financial expenditure on these houses. Consequently, it is likely that any food storage facility would have been incorporated within the single ground floor room. However, the lack of cellar and seeming lack of designated food storage area within the later Field Row properties (c.1796) is more striking, especially given that this row commanded the highest rental amounts (according to the 1844 Tithe Map). As there was no structural provocation to build cellars for Field Row houses, it is possible that a food storage area was provisioned in a similar manner as the form seen at Long Row (south) and that subsequent alteration to the properties have removed all trace. As such, the situation regarding the storage of food at Field Row remains unresolved.

Additional in-built cupboard storage areas are present adjacent to the fireplace in the ground floor room of houses conforming to *Plan 7* (figure 4.55). Similar small cupboards are frequently found in association with ground floor fireplaces or ranges and acted as stores for items used by the family. Within the development of Belper workers' housing, it seems likely that these cupboards were also used for this purpose.

Given that they would have only been a small investment to the Strutts, their presence only in the *Plan 7* properties supports the assertion that they may have been incidentally added by William Strutt on a trial basis.

Outhouses and the provision of adequate sanitation arrangements is a strong theme within Belper workers' housing and showed heavy patron investment. Evidence from cartographic sources dating from the early 1810s and 1820s demonstrates that each house was provisioned with their own outhouse facility. This, unlike the cellar/food storage area and in-built cupboard feature appears to have been the standard from the first 1780s rows of Mill Street and Short Rows. The estate map of 1829 (DRO D1564/27) shows that outhouses were arranged in pairs which straddled rear garden wall boundaries, meaning that each house had a semi-detached facility (figure 4.56). The most comprehensive record of outhouse construction survives in the building accounts for the stone houses in Long Row (north) (DRO D6948/8/3) and notes a considerable investment and attention to detail. The outhouses were constructed in a similar style to the coal houses and comprised a brick built lean-to with leaded slate roof and ironwork. The cost of slating the outhouses ran to £113..10s..2½d with the wood for nine double structures priced at £10..16s..4½d. This reveals that the outhouses were an important element of the workers' houses and that the Strutts had budgeted a considerable amount for their construction. Furthermore, provisions were made for their upkeep with strategic garden access incorporated in the overall planning of rows so that the night soil man had independent access to the garden area.

The investment in outhouses demonstrates that the Strutts took the health of their workers seriously. Crucially, both water-borne diseases and those associated with poor sanitation would have been highly detrimental to a workforce operating closely in heated mill buildings. Similarly the construction of a series of water pumps throughout the settlement can be interpreted as a precautionary measure to prevent endemic ill-health. The building accounts (DRO D6948/8/3) for Long Row reveal "three wells for pumps" were constructed in May 1794 and another pump is still present *in-situ* along Short Row (middle) (figure 4.57). It is difficult to determine how many more water pumps were installed across the settlement as many of the pumps were removed without trace during the nineteenth and twentieth centuries. However,

if the pattern determined at Long Row and the Short Rows is representative, it indicates that the Strutts provided a substantial sanitation system.

### **Form, style and planning of workers' housing in Belper**

The above sections demonstrate the heterogenic nature of the Strutts' building programme. Accordingly, in establishing the industrial community of Belper, the design of the properties was continuously altered as new forms of housing were trialled. As evidenced above, many of the changes made were to the benefit of the occupants and improved their living conditions. At the same time, the houses reveal a highly consistent building style which seems to have emerged from a series of sustained principles. This indicates a complex negotiation between the moral values as held by the Strutts, their sense of economic propriety and the expectations of their occupants. All of these elements affected the planning of workers' housing within the settlement. The remainder of this chapter will now consider the economic-socio-cultural consequences of the Strutts' building programme in establishing this unique settlement and will reflect on the key themes of this thesis, as outlined in Chapter One.

### **Belper housing as industrial units**

The assertion that workers' housing was an integral element in textile manufacture has already been established in Chapters One and Three. However, it is also evident the manner of this integration is dependent on the type of housing provided and the intentions of the patron. A clear example of this is given in the difference between Cromford and Belper. Jedediah Strutt's industry at Belper concentrated on the manufacture of hosiery yarn, as befitted his experience as a hosiery producer. In contrast, production at Cromford favoured finished piece-rate cloth (Fitton and Wadsworth 1958, 295 & 297). This fundamental difference meant that the two patrons sought very different forms of employee in the initial phase of their businesses. Whilst both skilled outworking weavers and lesser skilled mill operatives were required at Cromford, only the lesser skilled workers were needed at Belper. Consequently, housing requirements were different. At Belper there was no obligation to provide formal architectural provisions to facilitate home working and less urgency



in using the houses to entice workers to the mill site. As a result, whilst the first form of housing at Cromford was of the highest quality along North Row, those at Belper along Mill Street and the Short Rows were entirely more modest.

Whilst home-weaving did not take place within workers' housing at Belper, other forms of outworking were likely. Anecdotally at least, occupants were using their homes to undertake casual embroidery or 'chevining' to finished goods (Giles 1999a, 30). However, researching the extent to which this type of work occurred within the late eighteenth and early nineteenth centuries is problematic, not least because it was often undertaken by married women who were discrete about their activities due to the fear of being stigmatised (Giles 1999a, 30). As a result Belper, a town famous for its chevining, has no official record of the occupation until the 1841 Census records. This means that it is not possible to gauge the early scale of such work from documentary sources. Equally frustrating is the fact that this type of chevining work does not leave a trace within surviving building fabric. Consequently, the use of workers' housing at Belper as a place of textile manufacture is more difficult to assess.

Arguably, the minute contribution chevining work made to the overall financial success of the Strutts meant that it was never a pressing concern in regards to form of workers' housing. For the Strutts, their fundamental consideration remained the construction and upkeep of housing which could suitably accommodate a steady workforce. This was the function of workers' housing at Belper as an integral element within textile manufacture. Consequently, as the workforce was accommodated within a household or family context, the patrons needed to provide the type of environment that would be attractive to the head of the household making the decision to relocate his family. Specifically, this meant proving secure employment for the head of the household, resulting in a series of Strutt-built nail-making workshops which operated to furnish the mill with a cheaper in-house supply of nails (Fitton and Wadsworth 1958, 104). Three examples of this type of family arrangement are known from the 1844 Tithe Apportions and Map in relation to the rental of Cluster housing (DRO D1564/1a-b). In each case the nail-making workshops were leased to men also

renting the properties and it is presumed that this arrangement had earlier late-eighteenth and early-nineteenth century precedence.

### **Living standards, model housing and social ordering**

#### *Living standards*

It has been traditionally asserted that the workers' housing constructed at Belper gave occupants a higher than average standard of living, due to the personal ideologies of the Strutt family (Fitton and Wadsworth 1958, 246). This assumption is derived from an excessive focus on the personal correspondence between family members and a series of contemporary social commentaries by Farey (1813, 211) and Gaskell (1836, 294). Collectively this type of evidence has been interpreted very literally and has been used as the basis of the argument that workers' housing in Belper was superior to other industrial accommodation (as presented in the UNESCO inscription documentation). However, a close reading of these sources reveals that they are similar to those cited for Cromford and only vaguely discuss workers' housing at Belper. Once again it is questionable as to which properties these visitors were shown and whether their accounts were based on first-hand observation or anecdotal evidence. It is also evident that at the date of writing, Farey in 1813 and Gaskell in 1836, the gulf between urban slum and Belper housing had deepened (Chapter One) as the process of industrialisation had intensified. Consequently, the assertions made by these authors that these houses were 'comfortable' and 'clean' were contextualised according to the date they were written rather than the date the houses were constructed.

Evidence from surviving building fabric of workers' housing at Belper demonstrates that there were significant variations in the lived experiences between occupants of different housing rows. The most basic form of housing used at Belper was the Short Row (middle) model and comprised moderately lit units accessed via a narrow alleyway with simple step-ladder arrangement and single rooms on each floor. As such its form suggests a very hurried construction undertaken by a relatively inexperienced building team rather than high quality accommodation. It is therefore likely that these houses represented accepted local standards of living rather than

idealised housing. Consequently the first phase of housing fits with the model of an industrialist following a very functional approach and governed by a high degree of economic frugality, rather than driven by a moral imperative to provide workers with quality accommodation. This indicates that the retention of an early workforce was not governed by housing but by the economic stability mill work offer (Fitton and Wadsworth 1958, 233).

The basic standard of living provided in the *Group G* and *H* houses from the 1780s contrasts sharply with the later *Group H- K* arrangements of the 1790s and 1810s. These appear to offer a higher standard of living as stone throwls, inbuilt cupboards, additional bedrooms, staircase lighting and increasing internal partitions all contributed to a more comfortable existence for occupants. As such, they represent a greater level of financial investment made by the Strutt family. Noticeably these later properties are contemporary to both unprecedented expansion of the Strutts' own manufacturing interests at Belper, Derby and Milford, as well as those of competing industrialists nationally. Consequently, the sudden surge in the number of workers needed across their three sites, combined with the growing quantity of manufacturing sites in other locations, seems to have instigated a raise in the acceptable standard of housing at Belper. As a result, the *Group I* forms at Crown Terrace, Field Row and Long Row and later *Group K* houses may have been designed as a means to incentive workers to choose and remain loyal to the Strutts.

Additionally, this change in the standard of housing appears to reflect a noticeable transformation of the industrial architectural styles used by the Strutts and the introduction of William Strutt into the family firm. His involvement appears indicative of a second generation of industrialists looking to create a niche within existing businesses and distinguish themselves from their fathers. Accordingly the constant revisions in *Group I* house design, especially between Crown Terrace, Long Row (south west) and Long Row north, could represent the changes made by a young patron as he sought to perfect new building techniques and develop his expertise. Consequently, and potentially in contrast to the development of housing at Cromford, there is a part of these later 1790s Belper houses which reflects the personal ambitions held by an individual patron.

Finally, in understanding the living standards offered in workers' housing at Belper it is important to address the personal ideological stance of the patrons. The introduction of higher quality housing of *Group I* and *J* in the mid-1790s at a time of more financial security may acknowledge an ideological duty as alluded to in the writing of Jedediah Strutt's daughter Elizabeth Evans (1793, cited in Fitton and Wadsworth 1958, 167). Her correspondence with family members, written just prior to the construction of Crown Terrace, reveals a belief in the obligation of industrialists to guide and order their workforce as a means of ensuring happiness and spiritual fulfilment of both employer and employee (Fitton and Wadsworth *ibid.*). Depending on whether her thoughts were representational of her family, it may demonstrate that at least a proportion of workers' housing at Belper was constructed with an underlying sense of ideological agenda.

#### *Model housing and social ordering*

The above discussion determines that the standard of living experienced by occupants in workers' housing at Belper was very varied. As a result, it is difficult to describe these properties as 'model housing' as understood by Jackson *et. al* (2010, 9). The evidence suggests that whilst the Strutts prescribed to a Unitarian philosophy, their interpretation of the ideology was more complicated than the conventional historical elucidation has allowed. Principally, Jackson *et. al* (*ibid*) and the understanding as presented in the UNESCO inscription documents, subscribes to a later, mid-nineteenth century prescriptive view of philanthropic gestures. Consequently, the current author concludes that there was never an intention by the Strutts to provide 'model housing'. These properties should instead be interpreted as a programme of house-building which responded to a set of changing economic and industrial requirements which at the same time facilitated the family's compassion for their workforce.

The approach undertaken by the Strutts in regards to workers' housing might be classed as fiscal-morality. This is evident in the choice of housing design which, by being both simplistic and frugal, appealed to established Unitarian principles. Details such as the fireplace surround, door surrounds, fenestration, garden walling and

overall building design had strong stylistic affinity with late-eighteenth century ideas of spiritual piety (Fitton and Wadsworth 1958, 112). As a result, the use of cheaper and humbler architecture forms also functioned to impart ideas regarding financial prudence and responsibility. These principles were closely related to another core Unitarian value, cleanliness. Similarly, this had both practical and spiritual applications. Whitewashing, for example, as a common form of building maintenance also had religious connotations being both the colour and the action of washing away sins, typified by the phrase 'cleanliness next to godliness'. In the 1816 Commons Journal (cited in Fitton and Wadsworth 1958, 249), the representative for the Strutts made particular reference to property maintenance schedules as a means of ensuring the health of the workers. When comparing these properties to others in Belper, such as the nailer workshops, Naylor (1999, 36) suggests that the contrast between the crisp white workers' housing and the dust, dirt and smoke from other dwellings may have induced positive behaviour within the Strutts' occupants/workforce. Unfortunately as the opinions of the occupants are not recorded in the literature, it is difficult to ascertain whether these intentions were genuine and understood or impacted upon the philosophy of their tenants.

The other aspect to consider here is whether the differences in living standards between housing rows, coupled with underlying ideological principles held by the Strutts, resulted in a social ordering of the industrial community. Conventionally, scholars such as Fitton and Wadsworth (1958, 167) have argued that the Belper settlement was hierarchical arranged due to both the nature of industrial practice and the Strutts' personal beliefs. Expanding on this point, Fitton and Wadsworth (1958, 233) have suggested that the structured arrangement of the mill workforce was only enforceable if an equally structured domestic setting was imposed. Secondly, recalling the correspondence of Elizabeth Evans, they also argue that the Strutts believed that such hierarchically arrangements were part of a divine natural order. Fitton and Wadsworth's interpretations have been developed by Cooper (1991, 238) and also in the UNESCO inscription documentation to argue that any social structuring of the settlement was likely to be reflected in, and enforced by, the types of housing. Until this thesis social ordering had been broadly presented as pyramid shaped in which the 1780s houses (*Plan 5*) were at the bottom, with a range of 1790s housing types of

varying status above and the Cluster houses (*Plan 9*) as the apex of social hierarchy within the settlement.

Although the current author concurs that a level of social ordering was likely given the disparity in living standards experienced by occupants across the settlement, the pyramid format as outlined above is contested. Rather than a social order simply defined by housing type, a picture is emerging of a more complex arrangement in which the location of housing, occupant demographics, occupation and access to community amenities all played a credible role in constructing a social hierarchy. This is evident from the construction of the first phase of workers' housing at Mill Street and the Short Rows. A close survey of surviving building fabric has revealed four individually constructed rows with subtle architectural variations. These differences, including: lighting sources, setting, access to water pumps, garden size, housing aspect and proximity to/from the mill, are significant enough to argue that there was a complicated social order attached to these *Plan 5* properties. Specifically, this may indicate that occupants of Mill Street (north) and Short Row (end) held a superior social position than those in Mill Street (south) and Short Row (middle). As a result, there was a microcosm of social ordering operating within these four rows prior to the development of the rest of the workers' settlement.

Evidence collated by Fitton and Wadsworth (1958, 248) suggests that social differences within the workers' settlement had financial origins. Drawing on the earliest surviving weekly rental stops Fitton and Wadsworth (*ibid.*) have determined the weekly rental amounts (due the 5<sup>th</sup> June 1829) for all rows of workers' housing (DRO D6948/8/8). Their research demonstrates that by the second decade of the nineteenth century there was considerable rental variation *within* rather than *between* housing types. This suggests that the Strutts felt that there was a justification in charging different amounts for the same type of housing. Significantly there were at least 28 houses at Mill Street and the Short Rows which commanded the same rent as properties along Crown Terrace, Long Row and Chevin View. It is equally important to note a high number of houses at Long Row which were rented at the same amounts as the Cluster houses and Field Row (Table 1). Although Fitton and Wadsworth's (*ibid.*) research addresses the rental of houses in the nineteenth century, their results

accord with evidence collected during the buildings survey of 1790s houses. Consequently small interior differences to houses of *Plans 6-8* forms, such as the presence of an extension, bedroom space, upgrade to kitchen range or position of staircase would have produced some arrangements which were more desirable than others. It is this, arguably, which provided the foundation for any hierarchical structure between occupants.

<b>Housing row</b>	<b>Rental amount per week</b>
Crown Terrace	2s..3d to 2s..8½d
Long Row (north)	2s..3d to 2s..8½d
Chevin View	2s to 2s..5½d
Long Row (south)	2s to 2s..5½d
Mill Street and the Short Rows	1s..3d to 1s..8½d 28 were rented at 2s to 2s..8½d

Table 1: Rental amounts for workers' housing in Belper, 5<sup>th</sup> June 1829 (source: Fitton and Wadsworth (1958, 248))

The social ordering of workers, as described above, considers the formation of hierarchy arrangements made after the main phases of house-building had been completed. However, it is also important to consider the evolution of social ordering as new housing types were introduced in the 1790s and 1800s. The augmentation of Belper Mill during the 1790s meant that the number of employees exponentially increased from 600 in 1789 to 1200-1300 by 1802 (Fitton and Wadsworth 1958, 224). This influx of new employees and tenants necessitated the construction of the second phases of workers' housing at Crown Terrace, Long Row and Field Row, meaning

that the settlement transformed beyond its original limits. Consequently, it is envisaged that existing social structures within the earlier 1780s houses would have been significantly impacted. It is possible that the new 1790s styles were deliberately distinctive to facilitate a separate identity for those living within them. Thus differences in housing design could have been intentional as a useful means of reassuring both the incomers to the settlement and existing occupants of their respective social status within their society. As a result, the Strutts may have been looking to promote social harmony by avoiding cross-comparison between old and new housing forms and thereby prevent occupants from feeling vulnerable to perceptions of social change as their physical community transformed.

The retention of the earlier 1780s properties after the construction of the 1790s and 1810s houses reflected a continued financial and social need for these smaller houses as part of the workers' settlement. Fundamentally, whilst some of these 1780s houses were upgraded, others were left as constructed. To improve all the houses would have required a rental increase across the board as the Strutts' sought to recoup their investment. This act would, therefore, deprive the lowest earning household from affordable housing within the Strutts' industrial settlement. Their decision appears in accordance with established Unitarian principles for a patronly duty to provide what the worker could afford and educate him to want better, rather than to provide charity (Fitton and Wadsworth 1958, 229). Consequently, by the early-to-mid nineteenth-century these houses actually conformed to the representation of 'model housing' as outlined by Jackson *et. al* (2010, 13), in which elements of the design were re-appropriated with a hopeful ambition that occupants may "aspire" to better themselves.

#### *Resistance and worker zonation*

Due to the selective nature of the surviving document sources, it is more difficult to characterise the approach taken by the Strutts as landlords than it is to understand their behaviour as employers. Through the work undertaken by Fitton and Wadsworth (1958, 233) it has already been established that the Strutts enforced a strict code of conduct on their employees with a system of surveillance, rewards and fiscal



penalties. Nonetheless, from the same document sources it is also apparent that the workforce frequently subverted the Strutts' rules regarding behaviour (DRO D6948/11/7). In the absence of surviving documentation, however, it is not clear as to whether the Strutts chose to enforce the same system within the workers' settlement and how this was received by the occupants. Evidence from surviving building fabric, as discussed earlier in this chapter, also indicates that the situation was very complex and often contradictory. As noted, the possible surveillance of occupants was not enacted evenly across the settlement with some architectural forms impeding any level of Strutt-led observation. As a result, where a closer observation of tenants was required, they were zoned in a type of property which could facilitate the necessary closer management.

The architectural design of Chevin View demonstrates an occasion where the Strutts undertook a more intensive approach to the observation and management of a specific housing row. As a result, the Strutts deliberately zoned a certain demographic of their tenants, households with nailers as the heads of the family unit. Nailers drank copiously and were rumoured to take extra days off work to recover, known as 'Saint' days (Naylor 1999, 25). Court papers for Belper record a wealth of incidents detailing crimes undertaken by nailers, including: brawling, poaching, assault, theft and contract murder (Naylor 1999, 27 & 53). In 1838 during the celebrations for Queen Victoria's Coronation, tensions between various members of the community reached flashpoint when the nailers accused railway navvies of taking their ale. In an altercation known locally as the "Battle of Pease Field" the two groups of workers fought so aggressively that the militia men refused to intervene (Naylor *ibid* ). However, the families of these nailers, and especially the children, formed the core part of the Strutts' mill workforce. Consequently, the Strutts' were sufficiently dependent on the nailers to justify providing their housing (Smedley pers. comm. 2011).

The construction of Chevin View away from both the core of the workers' community and mill complex reflects the Strutts' cautious approach to this sector of the workforce. This is underlined in the deliberate inclusion of architectural measures to accommodate the visual surveillance of, and prevent social interaction between,

nailer-households. The building fabric, therefore, supports the conclusion that the Strutts sought to control the environment that these occupants lived in. It is feasible that this type of investment in the design of Chevin View was deemed necessary because these properties represented the interface between two very different industries: nail making and cotton spinning. Whereas cotton manufacturing was structured according to shift-work, the nailers remained very independent in regards to their daily working arrangements. Consequently within the nailers' households, the head of the household worked according to one tradition at the same time family members worked according to another. As a result, this had the potential to create additional conflict and resentment within nailer-households. Keeping these households separate and under surveillance therefore acted as a preventative measure to limit the effects of any subversion undertaken by this sector of society.

There is, however, a note of caution to be added in relation to the above interpretation. The first documented accounts of nailers at Chevin View date from the census records collected in 1841. In addition the majority of anecdotal and documented evidence regarding the behaviour of nailers is also mid-nineteenth century in date. It is, therefore, difficult to establish whether the row was constructed for, and housed, nailers in the early 1790s. However, regardless of their identity, it is also evident that the first occupants of Chevin View were more intensively segregated and subject to more surveillance than other tenants within the workers' settlement. Consequently there remains a fundamental difference between the way in which the Strutts treated these occupants and others in different housing rows.

Similar dating problems are also apparent in the conventional interpretation that the Cluster properties housed overseers. Census data from 1841 reveals that tenants of these properties were spinners, maintenance personnel, textile outworkers and agricultural labourers but not overseers. Specifically, of the twenty Cluster homes only one was recorded as being occupied by an overseer. This meant that proportionately there were significantly more overseers residing in Long Row, Mill Street and the Short Rows properties. Consequently, the question as to whether the Strutts' specifically divided their occupants according to house type and social status

continues to be divisive in regards to the discussion of the development of early Belper.

### *Pomp and Ceremony*

This chapter has so far demonstrated that the location of workers' housing at Belper was influenced by the circumstances of land availability and the need to segregate a small proportion of occupants away from the main core. However, it is also evident that the settlement had elements of formal planning which fostered a sense of pageantry. This is especially marked in housing which was visible to Belper town. A case in point is provided in the differences between the four housing rows built in the 1780s. Both Mill Street (north) and Short Row (end) face towards the town and were set back from the frontage with stone walled gardens, as repeated in the later Field Row. As such the form paralleled contemporary small rural dwellings within the Amber Valley area of Derbyshire. In contrast, Mill Street (south) and Short Row (middle), which face away from the town, had a simpler and more industrial façade opening directly onto the street. The same pattern of façade was repeated in the 1790s as houses along Chevin View. Houses facing onto the main road had walled front gardens whereas those facing away from the road were simply paved.

The selective use of these façades with the more conventional housing forms suggests that the Strutts were looking to construct a specific identity for at least part of their settlement. As a result, there was a deliberate association between traditional housing forms and the imagery correlating with a rural agricultural idyll. Arguably, therefore, the Strutts were appealing to townspeople and those outside of their employment by making the workers' community seem more familiar and therefore more likely to be accepted. Consequently, the display of housing had the purpose of establishing their settlement as part of local tradition and harking back to older forms of employment, such as out-working, without actually implementing it.

Whilst the conventional forms of housing were being used to make a statement regarding the ancestry of the Strutts' cotton production in Belper, the new forms of property, and especially Long Row, were being used as a backdrop to processional routes through the settlement. This indicates that the houses had a ceremonial

significance. Most documented cases suggest that these routes through the community took place in association with the act of worship on a Sunday as the Strutts' entered the Unitarian chapel on Field Row. Naylor (1999, 53) also reveals that during the dedication of the Anglican Church, St Peters' in 1822, the workers' community was used as a setting for a large procession including the Strutt family, the Duke of Devonshire and workers, from the mill buildings through Long Row and to Green Lane. Arguably, therefore, by the early-to-mid nineteenth century, the workers' settlement had become integrated with Belper Town to provide an important function within the wider community.

## **Conclusion**

Chapter Four has analysed the full spectrum of purpose-built textile workers' housing from the site of Belper. This case-study covers a variety of forms and styles constructed between the 1780s and 1820s by the Strutt family. Through a detailed examination of the exterior and interior of properties, this study has revealed variation between housing types and highlighted a number of significant themes. The houses illustrate the complex interaction of multiple influences acting on the design of workers' housing during the ongoing development of the cotton industry in the Derwent Valley. This chapter makes the argument that occupants were not passive in shaping architectural development and challenges prevailing scholarly perceptions regarding the manner of patronly input into workers' housing. It has shown that the actual composition of properties reflected the needs of industry, patron exploration and the diversity within the types of occupant accommodated.

The design and construction of housing at Belper demonstrates a major difference between the influencing factors of the 1780s and those of the 1790s. The construction of the first properties along Mill Street and the Short Rows indicate a cautious approach with minimal financial expenditure by the patron. This contrasts with levels of investment seen in subsequent phases of house-building especially from the mid-1790s onwards at Crown Terrace and Long Row and indicates a fundamental shift in the approach taken to housing a workforce. Thus the design of the properties reveals an ongoing level of experimentation as new forms of housing were trialled. These

changes looked to benefit occupants' daily lives and improve living conditions. However, housing also continued to be constructed piecemeal and remain stylistically influenced by more conventional domestic traditions. This reveals the tension in the design and construction of Strutt-built properties and reflects the complex negotiation between the Strutts' sense of patronly duty and the economic realities of house-building.

The typological assessment undertaken in this case-study explores the linkages between exterior and interior forms of workers' housing. This approach has yielded new insights about daily occupant life. Within houses dating from the 1790s onwards, subtle changes seen within the architecture reveal important improvements to the lived experience. These include a move to increased privacy of first floor bedroom spaces, the provision of well-lit stairwells and adequate food storage facilities. These features are significant as they suggest a genuine attempt by the patrons to address problems in conventional domestic forms rather than reflecting their own social status or looking to attract skilled workers. This case-study has also examined aspects of occupant management within the industrial setting and determined that models of surveillance were applied differently according to the type of employment held by the heads of household. This is evident in the contrast between the forms of direct surveillance of nailer families housed away from settlement core at Chevin View and the more self-regulatory arrangements used elsewhere. This chapter therefore demonstrates that the Strutts had no single approach to house-building at Belper. The subsequent housing constructed reflected a series of patronly responses to a range social and economic circumstances according to what they determined appropriate in their capacity as later eighteenth century millowners.

## **Chapter Five**

### **Milford**

Chapter Five focuses on the third case-study presented in this thesis, and the second of the two workers' communities owned by the Strutt family (figure 5.1). Milford is situated less than two miles south of Belper and was purchased in 1781 by Jedediah Strutt as the site of his bleaching and dying works (DRO D1564/28). This chapter continues to explore the core themes outlined in Chapter One and aims to examine the development of workers' housing as the cotton industry of the Derwent Valley continued to expand. In particular, this chapter explores the subsequent design of house-building schemes in relation to the impact of coordinated industrial expansion under a single family. Through an analysis of contemporary documents alongside surviving building fabric, Chapter Five discusses the implications in housing design as manufacture moved beyond cotton spinning into more precision-finishing processes. Finally, this chapter explores the development of housing forms within a challenging topographical setting and investigates the consequences of the subsequent designs on the daily lives of occupants.

Milford Mill was fully operational in the early 1780s as a specialised complex for the finishing processes of cotton yarn, and as such was intended to complement the Strutts' existing textile concerns at Belper and Derby (Fitton and Wadsworth 1958, 210). The siting of Milford Mill, with available land, consistent water levels and the presence of surplus workers from existing industries, demonstrates that the Strutts continued to use the model already established for cotton manufacturing sites in the Derwent Valley. However, in contrast to the other locations, the acquisition of Milford provided the Strutts with a series of pre-existing industrial buildings and a small row of workers' housing (DRO D1564/28). Beyond nominal inclusion in the UNESCO inscription documentation, neither these buildings nor the subsequent phases of Milford Mill have been the focus of extensive scholarly attention. This may in part be explained by the fact that in contrast to Belper, very few of the manufacturing accounts and records survive. Moreover, during the 1960s the majority

of the industrial mill complex was abandoned and demolished, leading textile historian Chapman (1976, 124) to state that there was little left to study.

This thesis' focus on workers' housing seeks to redress our understanding of the significance of Milford for industrial archaeology. Although the factory buildings have long-since disappeared, the workers' settlement survives almost intact and forms two distinct areas of housing on either side of the mill complex. This reflects differences in pre-enclosure landownership and the subsequent pattern of purchases made by the Strutts as they began to manufacture at Milford. Workers' housing forms are varied, comprising terrace, back-to-back and semi-detached arrangements (see Chapter One) alongside community amenities such as a school, shops, former reading room and non-conformist chapels. Housing dates from the 1790s up to the 1830s, but only a small proportion currently has statutory protection. To the south end of Hopping Hill stands Holy Trinity Church, which was built in 1848 at a cost of £2000 (Fitton and Wadsworth 1958, 254). Consequently, the settlement at Milford has retained much of its original character and survives to give a unique insight into the arrangement of industrial house-planning at the turn of the nineteenth century.

#### *The Strutt family and early Milford mill*

The documented historiography of the Strutt family has already been discussed in detail in Chapter Four, where it was established that an overly historical agenda has skewed our understanding of the development of workers' housing in the Derwent Valley. Specifically, the focus on the personal ideologies of individual family members, as championed by Fitton and Wadsworth (1958, 250-258), has led to the perception that all actions undertaken by the Strutts were innovative and had a charitable origin. This argument has been most recently re-asserted by Peers (2010, 84, after Fitton and Wadsworth 1958).

Although the conventional historiography of the Strutt family is Belper-centric, it is evident that many of the industrial innovations with which they are most associated were pioneered at Milford (DRO D1564/28). By 1789 Milford Mill comprised two buildings that were fully operational with a third, the Cruciform Warehouse, added in 1793 (figure 5.2). This third building represented the first experiment with a

‘fireproof’ industrial structure by the Strutts (Fitton and Wadsworth 1958, 205). Unfortunately, all three buildings were demolished in the 1960s, with only a brief journal article commissioned prior to their destruction (Johnson and Skempton 1956). Local anecdotal accounts reveal that these buildings comprised brick floors, iron columns and iron-encased timber beams and proved especially difficult to dismantle (Farmer 2011 pers. comm.). Their demolition has left the site bereft of traditional classifications of industrial remains and thus scholarly study.

#### *The creation of a workers’ community*

Within the UNESCO inscription documents, Milford has been credited as an important early textile workers’ community. However, it has rarely been the focus of published scholarly research. There has been a tendency by scholars to dismiss the development at Milford in preference to Belper and even Cromford, and investigation has been limited to discussions regarding the larger programmes of house-building, such as Hopping Hill and the East and West Terrace (figure 5.3 and 5.4). This is evidenced in the recent conclusion by Peers (2010, 83) who argues that the Strutts’ housing at Milford simply expanded the “blueprint” established by Arkwright.

The surviving Deeds of Arrangement Title Map for Milford (1829) reveals that a small series of “workmen’s housing” was included within the original purchase of the iron foundry by the Strutts (DRO D1564/28). This indicates that the initial workforce, possibly retained from the former metalworkers, was housed in pre-existing accommodation. The use of existing houses at Milford replicated a model first exploited at Belper. However, the Belper examples were not Strutt-owned and were located some distance from Belper Mill. From the outset, the Milford workers found themselves under close patronal observation. Whilst it is likely that this reflected financial pragmatism, it may also reflect the need for close supervision of metalworkers during their transition to abiding by textile working practices. The association between housing which facilitated a high level of surveillance, and households traditionally connected with the metalworking industries has already been discussed in Chapter Four. Consequently, it is possible that the situation at Milford was a forerunner to the segregation of nailers’ families seen in Chevin View, Belper.



This parallel is important because it raises questions about recent assertions by textile historians that the move to Milford represented an attempt by Strutt to manufacture in a location in which he was the sole landowner and employer, and in which he could exercise strict codes of moral conduct on employees (Joyce 2012, pers. comm, after Chapman 1976, 32). Joyce's interpretation is problematic because it does not take into account the complexities of landownership in Milford. Although by the mid-nineteenth century the Strutts eventually became the primary employer/landlord within the settlement, the effects of the Enclosure Act (1791) meant that singular ownership was never an achievable goal. Additionally, as Chapter Four has argued, there is little evidence to suggest that Strutt was actually concerned with enforcing a moral code onto his employees, especially one that was so intensive it could only be achieved if he was the sole employer/landowner of the settlement. Consequently, the move to Milford is more likely to reflect Strutt's flourishing industrial success and need to expand and monitor manufacturing processes – in factory and domestic contexts – rather than the moral behaviour of the workforce.

#### *The first housing of the 1790s*

##### *Hopping Hill*

The expansion of Milford Mill in the 1790s necessitated additional investment in workers' housing. The construction of the first phase of Strutt-built properties began in mid-1791 along Hopping Hill (figure 5.5). House-building appears to have been a coordinated approach designed to coincide with the confirmation of the Enclosure Awards (in 1791, but on-going since 1787). This is evident in the purchase of former manorial land, Hopping Hill, in two sections, during and after the confirmation of the awards (DRO D1564/28) (figure 5.6). Easton (2012, pers. comm.) has argued that Strutt was opportunistic in his acquisition of land. Following Chapman (1976, 123), both she and Peers (2010, 90-91) argue that the design of houses reflected the need to find a pragmatic solution to the problems of pre-established patterns of land tenure and limited opportunities for purchase, as well as the steeply inclined topography of the hillside (DRO D1564/16).

Yet these assertions are problematic, not least because flatter pieces of sizable land (such as plot number 166) were already in Strutt's ownership prior to 1791 (DRO D1564/28) (see figure 5.6). The decision to acquire and build on Hopping Hill appears deliberate. Unlike other plots of land available after the enclosure process, that on Hopping Hill was adjacent to the main Derby-Matlock road and visible across the valley. As a result any property built on this land would have had a prominent aspect. Rather than viewing this land as an unsatisfactory remnant of the enclosure process, onto which workers' housing had to be awkwardly constructed, it is more appropriate to interpret this as a deliberate strategy by the Strutts to create highly-visible statements of their success within the wider industrial landscape.

The first phase of Strutt-built workers' housing at Milford was vast and coordinated, comprising a significant number of properties running as a long terrace on the northern side of Hopping Hill. Detailed building accounts demonstrate that the row was constructed in five sequential stages between 1792 and 1797 (DRO D1564/28; DRO D6948/8/1; D8984/8/3); however the absence of housing numbers in the document sources means that it is difficult to provide a definitive house-by-house chronology of the construction process. The primary phases of land preparation, foundation cutting, haulage of building materials and construction are recorded in the buildings accounts between July 1792 and early 1794 (DRO D6948/8/1). This work was contemporary with the construction of the large cruciform warehouse at Milford and appears to indicate a coordinated, simultaneous investment in both the mill complex and the community. The timing is also significant in that it coincides with William Strutt's entry into the family business and the beginning of the second phase of house-building projects at Belper. The Strutts were therefore undertaking work to expand capacity at both of their cotton manufacturing complexes in a carefully-planned, staggered sequence of construction.

The building accounts expose the pace of construction at Hopping Hill (north) and demonstrate that the project was active throughout most of the 1790s (DRO D6948/8/1; D8984/8/3). By July 1793, an unspecified number of houses were almost complete, with a further twelve properties under construction. In February 1794 a further sixteen were being built and by December 1795, 31 properties had been

completed. Unfortunately, these accounts are too ambiguous to determine which properties at Hopping Hill were built as part of each of these stages. A case in point is evident in trying to pinpoint the location of the twelve properties referred to in July 1793. The estate maps for 1792 and 1805 suggest that Nos. 41-42 Hopping Hill were later additions to the row. This means that Nos. 31-54 were formerly arranged as two smaller terraces comprising Nos.31-40 and Nos.43-54 (DRO D1564/13 and DRO D1564/3). It is therefore tempting to suggest that the twelve houses referenced in the building accounts relate to the properties Nos.43-54, a hypothesis reinforced by the consistency in style of Nos.43-54 and Nos.31-40. The sixteen properties referred to in the accounts for February 1794 are likewise difficult to locate (DRO D6948/8/1). Evidence from the building fabric does not immediately support the construction of a single terrace of sixteen properties as a single phase. This demonstrates the ambiguities in the building accounts, and suggests that Hopping Hill was not built sequentially from one end to the other, but rather as a series of smaller terraces which were eventually joined to form the row as it survives today.

The entries in the building accounts become less detailed from the mid-1790s onwards and it is clear that some phases of work went unrecorded. This highlights the danger of an over-reliance on documentary sources as a means of understanding the pace of house-building in early industrial settlements and illustrates the importance of archaeological analyses of the surviving buildings themselves. Subtle architectural differences between Nos.1-7 and Nos. 8-16 support the assertion that the two rows were built sequentially as separate building phases (see figures 5.7 and 5.8). Furthermore, the abutment of roof-lines between Nos.8-16 and Nos.17-24 reveals that Nos.17-24 were part of a later phase of construction and built as a separate terrace of eight properties (figure 5.9). Finally, the form of Nos.25-27 shows that they were the final phase to be built in this part of the Hopping Hill (north) row, as a small group of three properties.

The interdisciplinary analysis of both surviving building accounts and workers' housing itself reveals that the construction of Hopping Hill (north) was undertaken as a series of small terraces. This pace of construction may reflect a number of factors, including: the immediate need for the properties, cash-flow restraints, prioritising

construction work elsewhere and the number of builders employed. The subtle architectural differences in the design of these properties are evidence that a variety of builders were contracted to different jobs in separate building seasons. Consequently, the pace of building at Hopping Hill (north) is comparable to that of housing at Long Row, Belper (Chapter Four) and reflects wider trends in the speculative construction of terraced housing in this period.

In contrast to documentation for Hopping Hill (north), very few accounts survive which record the construction of Hopping Hill (south) and so the pace and phasing of this area of the workers' settlement is less assured. Comprising only six buildings which were constructed in two distinct phases starting in 1794, these houses (Nos. 57-59 and Nos.61-64) appear only briefly in the building accounts (DRO D6948/8/1; DRO D1564/1; DRO D1564/3) (figure 5.10 and 5.11). Whilst this suggests that the Strutts focused on the administration of their larger building works, such as Hopping Hill (north), it also indicates that they had a varied approach to the way in which they managed the construction of workers' housing. Additionally, the specific mention of the barrel-vaulting in at least two of these properties suggests that they remained an important part of the Strutts' workers' settlement. This may indicate that these properties were considered more of a bespoke building project and were possibly constructed with their intended occupants in mind (DRO D6948/8/1).

### *Sunny Hill*

During the 1790s, smaller housing projects were also undertaken by the Strutts at Chevin Road, Chevin Alley, Well Lane and Banks Buildings (figure 5.12-5.14). The form of these rows was more varied than Hopping Hill and appears to reflect a range of architectural solutions adapted to the gradient of the hillside slope. The lack of surviving documentary sources for these houses has meant that housing at Sunny Hill has received little sustained research or analysis.

Nos.1-5 Chevin Alley were constructed in two phases broadly dated between May 1791 and 1792, as evidenced from the Deed of Arrangement and the 1792 estate map (DRO D1564/28; DRO D1564/13). These sources also demonstrate that the Banks Buildings were constructed as two phases of six properties by 1792 (figure 5.15). Nos.

8-14 Well Lane are not shown on the 1792 estate map, and it seems plausible that these properties were constructed, along with Chevin Road, at a slightly later date (DRO D1564/13).

The differing architectural designs of housing at Milford have been interpreted as evidence of an industrial settlement hierarchy. Thus, the UNESCO inscription documentation uses the 1792 estate map as evidence for the former existence of a row of eight properties, The Bleach Houses, of a “superior” housing design used to accommodate managerial staff responsible for the bleaching process at Milford (figure 5.16). Today, only two of these properties (Nos. 4 and 6 Chevin View) survive and these raise considerable doubts about the basis of this interpretation (see figure 5.12). Detailed analysis of the building fabric carried out as part of this thesis did not reveal any discernible differences in the size or quality of these properties from others at Sunny Hill. Furthermore, the 1787 enclosure map indicates that at least two of the supposed eight houses were constructed prior to the Strutts’ purchase of Milford land (DRO D1564/16) (figure 5.17). This raises considerable doubts about current understanding of the significance and value of these houses.

#### *The second wave of Strutt housing in the 1810s-1820s*

The construction of the Dukes Buildings and the East and West Terrace in the first decades of the nineteenth century represents a second phase of house-building undertaken by the Strutts at Hopping Hill (see figure 5.4 and 5.18). These two rows conformed to very different building traditions and reflect the evolution of the Strutts’ house-building schemes. The location of the Dukes Buildings on the south side of Hopping Hill, below the earlier 1790s row, suggests that the row was simply intended as an extension of the settlement, located on land already owned by the Strutts. In contrast, the East and West Terraces represent the introduction of a new type of housing designed to be an architectural statement within the industrial landscape.

The construction of the East and West Terraces appears to have occurred when the existing supply of speculatively-built workers’ housing at Sunny Hill had been thoroughly exhausted at some point prior to 1820 (Peers 2010, 90). There are contradictions between the cartographic sources, which indicate a construction date

between 1818 and 1820, and unseen surviving buildings accounts which may suggest a date of as early as 1813 (Peers 2010, 91). Archaeological analysis reveals that the row was built in at least two distinct phases, although the overall consistency of the design suggests that construction occurred in sequential building seasons. The form of the East and West Terraces is distinctive and marks a decisive break from earlier building traditions used within the settlement. The houses comprise a complicated interlocking back-to-back arrangement of housing unit which takes into consideration the extremely steep hillside slope (figure 5.19).

Following a conventional historical research framework, Peers (2010, 96) and the UNESCO inscription documentation have strongly argued that the unusual form of the East and West Terrace must have necessitated the involvement of an architect. Consequently, the row has been tentatively attributed to J. Hicking who was responsible for the Strutts' contemporary Cluster houses at Belper (Chapter Four). Scholarly interest in the East and West Terrace has remained focused on the plan-form and exterior of these properties, emphasising their uniqueness as a type of workers' housing. What has been completely ignored by such an analysis is the form, quality, fixtures and fittings of these houses, in relation to conventional interpretations of back-to-back types of workers' housing, to which this chapter returns below.

This chapter attempts to reconstruct the development of workers' housing at Milford between 1791 and 1823 from a range of partial and fragmentary sources. As at Cromford and Belper, conventional industrial research agendas in the Derwent Valley have exerted a powerful and sometimes unhelpful legacy for understanding the significance of Milford's workers' housing. A bias in favour of narratives which emphasise the personal, patronal and benevolent intentions of the Strutts has resulted in the elevation of examples of architecture deemed most innovative or unusual, such as Hopping Hill (north) and the East and West Terrace. This reflects the wider tendency of traditional research agendas to prioritise the industrial over the domestic and the innovative over the mundane and can partly be understood as a response within the Derwent Valley to UNESCO's selection criteria. However, the consequence of this is that the socio-economic complexities of Milford's workers'

housing have been downplayed and their potential significance for modern industrial and historical archaeology has been overlooked.

#### *Archaeological assessment of the surviving workers' housing*

The remaining sections of this chapter are dedicated to re-assessing Milford's workers' housing, deploying the methodology successfully piloted at Cromford and Belper. This allows for the surviving building fabric to be studied in conjunction with documentary evidence and results in the production of the first systematic and accurate dataset of Milford encompassing housing from several phases of its industrial development. It addresses the need identified in a recent conservation plan for East and West Terrace (Rodney Melville and Partners 2007) for future research to investigate surviving building fabric in order to contextualise the historical data and analyse its significance in relation to other regional studies, such as Yorkshire and Lancashire (Caffyn 1986), Leicestershire (Palmer 2000), Nottinghamshire (Campion 1996) and Manchester (Nevell 2011). The chapter proposes a re-interpretation of Milford's housing which emphasises its variety and experimental nature. As with Cromford and Belper, the analysis moves beyond traditional investigative remit to consider the interior of the houses and explore the living standards experienced by the occupants at Milford. It concludes by re-establishing the significance of Milford in line with the wider narratives of workers' housing emerging from this thesis.

#### *Exterior descriptions*

Despite the breadth and survival of workers' housing at Milford, there has been little attempt to establish a formal typological sequence for the settlement. As a result, the most complete assessment of workers' housing in Milford appears in the UNESCO inscription documentation. Here a brief description of the exterior forms of each type of property is given with emphasis placed on unusual architectural arrangements. The publication borrows heavily from Chapman's (1976, 123) typological analysis of Belper. It identifies just three classifications of housing at Milford: Hopping Hill (north), the East and West terrace and an amorphous group of other more conventional housing. Chapman's typology also informs Jackson *et. al's* (2010, 19)

extension of the typology which includes the terrace row at Chevin Alley on account of its unusual architectural style, which:

*“dilute[s] any sense of domesticity and render the terrace as ambiguous as a type, as the mill buildings to which it is attached” (Jackson et. al 2010, 19).*

The existing typological assessments undertaken at Milford are the result of a continued preferential focus on the more unusual types of housing underpinning the whole narrative for the settlement. As a result, the majority of workers’ housing types, especially those at Sunny Hill, remain outside of the current classification system. The typological assessment offered in this thesis presents a reclassification of workers’ housing based on a detailed archaeological survey of the building fabric. It draws attention to the breadth of innovation seen at Milford, alongside recurring patterns of house-building. As in Chapters Three and Four, such typologies take account of *both* exterior appearance *and* interior arrangement, and clear links between these have been made, where appropriate. This allows research to move beyond the analysis of façades and towards an understanding of the daily experiences of living within the Strutts’ housing at Milford. It should be noted that this classification is a continuation of the form used at Belper (Chapter Four) and therefore starts with *Group L*. This is to enable inter-site comparisons of housing forms without confusion or duplication. Clear linkages between housing groups have been established in Appendix 1.

*Group L: Aligned elevation with dormer window*

*Group L* properties appear exclusively along Hopping Hill and date from the early 1790s (see figure 5.5). These elevations are three-storey and comprise: off-centre doorways, surmounted by a segmental stone arched header, and single windows to the ground floor and first floor. With the exception of No.1 Hopping Hill, *Group L* houses each have a single dormer window. There are slight variations along the row, but the overall arrangements indicate that they were constructed as a coordinated programme of work. The dormer windows provide the only light source into the



second-floor and are possibly replacements of an earlier, similar design. As No.1 is at the end of the row, the second-floor of this property was illuminated by a window in the gable elevation.

An essential part of the *Group L* arrangement is its setting behind an individually walled forecourt area. This formal demarcation of space provided a boundary between each house and was an important consideration, given that the properties were located on the main thoroughfare through the settlement. There are two sub-categories to *Group L*, distinguishable by the style of fenestration and boundary wall, although both were used with a *Plan 10* form (figure 5.20).

#### *Group L (a)*

Sub-category *Group L (a)* appears exclusively at Nos. 1-7 Hopping Hill (see figure 5.7). Unusually, the style of fenestration differs between ground and first floor. The ground floor window has a plain stone lintel flush with the elevation and is comparable to examples from Belper, especially *Group F* properties along Short Row (end) (see figure 4.3). In contrast the first floor window has a segmental stone arched header which is similar to the doorway. Both lintel styles look to be part of the original design rather than a later insertion. It is probable that the differences are likely to be a combination of local building traditions, skills of the builders and availability of materials. *Group L (a)* elevations are set behind a walled forecourt characterised by triangular-shaped coping stone and a raised party wall between pairs of properties. Although this party wall is not as extensive as those present at Belper (Chapter Four), it does follow a similar model and affords a degree of added privacy between neighbours.

*Group L (a)* appears to be the most basic type of elevation seen at Milford and as just seven properties conform to this sub-group, it was also a short-lived design. Consequently it is likely that this was the most economical design available to the Strutts in the early 1790s. It is probable that the use of a dormer window proved an inadequate lighting solution to the upper floor room and was therefore unpopular with tenants. Notably, it was not used outside of the *Group L* elevation type.

### *Group L (b)*

The use of the *Group L (b)* elevations was also short-lived with just four examples along Hopping Hill, at Nos. 61-64 which date to the late 1790s (see figure 5.11). The doorway, ground and first floor windows of *Group L (b)* properties are all surmounted by a segmental stone arched header and are therefore stylistically different to the earlier *Group L (a)* elevation. Additionally, the positioning of the first floor window with the lintel at eaves height makes the proportions of the elevation more comparable to *Group I* properties at Belper (Chapter Four) than *Group L (a)* in Milford. *Group L (b)* elevations are also set behind individual forecourt areas which comprise a low stone wall capped with rounded coping stones. These vary in height between examples and may indicate that they were constructed sequentially at a slightly later date.

### *Group M: Aligned elevation*

The *Group M* elevation described below is comparable to the *Group H* form noted at Field Row, Belper (see figure 4.4) and was widely used at Milford with examples at both Hopping Hill and Sunny Hill. As such, the basic *Group M* elevation was adapted according to different situations and plan-forms. Four-subcategories are present at Milford, revealing small variations in window dimensions and proportions.

### *Group M (a)*

The three-storey *Group M (a)* elevations are found at Nos.7-54 Hopping Hill (see figures 5.8 and 5.9) and comprise: an off-centre doorway surmounted by a segmental stone arched header, single sash window to the ground floor, smaller casement window to the first floor and a small nine-pane iron-framed window to the second floor (figure 5.21). Despite local debate regarding the authenticity of the iron-framed windows, the description of 'iron-framed windows' in the building accounts for Hopping Hill (DRO D6948/8/1) strongly indicates that they were part of the original arrangement. Iron-framed windows also appear in contemporary mill buildings at the site and therefore their use in *Group M (a)* properties raises interesting questions regarding the procurement of building materials.

*Group M (a)* properties are set behind a walled forecourt area which is raised up three steps to take into consideration the incline of the hill. The walling is stylistically similar to the *Group L (a)* arrangement, which may indicate that the forecourts of properties along Hopping Hill were all constructed at the same date. *Group M (a)* elevations were used with *Plan 10* forms (see figure 5.20).

#### *Group M (b)*

Sub-type *Group M (b)* only appears at No.57-59 Hopping Hill (see figure 5.10, 5.22 and 5.23). The elevation originally comprised an off-centre doorway and single sash windows to the ground and first floors, all surmounted by a segmental stone arched header. *Group M (b)* properties are set behind a walled forecourt area similar in style to *Group L (b)* with semi-circular coping stones.

Unfortunately all three examples of *Group M (b)* elevations have been altered during the nineteenth and twentieth centuries, with aggressive changes made to the style of first and second floor windows. In addition, Nos. 57 and 59 Hopping Hill have been significantly extended. At No. 57 this comprises an outshot extension added to the gable-end and similar in style to those at the Cluster houses, Belper. However, the work undertaken at No. 59 is fundamentally more extensive as the property was partially rebuilt in order to create a double-fronted arrangement with a central doorway. Despite these changes all *Group M (b)* elevations remained in use with *Plan 11* forms (figure 5.24).

#### *Group M (c)*

The *Group M (c)* elevation is present only at Chevin Alley and is three-storey with an off-centre doorway and stone segmental arched header (figure 5.25). *Group M (c)* properties are again set behind a walled forecourt area which is stylistically comparable to *Group M (a)* at Nos. 7-54 Hopping Hill and suggests sequential phases of construction.

The style of fenestration in *Group M (c)* properties differs between ground and first floor and whilst the ground floor single sash window has a shaped stone header, the first floor window has a segmental arch header. The second floor window is

positioned at eaves height and so does not have a formal header. Both the ground and first floor windows have plain stone sills. Additionally, Nos.1 and 3 Chevin Alley have two smaller windows which provide light to the stairwell and are stylistically similar to the second floor windows of *Group M (a)* elevations (figure 5.26). Nos. 2 and 5 Chevin Alley have a small window which lights an under-staircase cellar and is again a similar size to the second floor window of *Group M (a)*. Whether No.4 Chevin Alley also conforms to the same arrangement as Nos.2 and 5 remains unclear as a modern porch addition obscures this part of the elevation. Similar stairwell and cellar windows have been observed in *Group I* elevations at Belper (Chapter Four; see figure 4.4); however as Chevin Alley pre-dates these properties it is possible that *Group M (c)* represents an earlier experiment undertaken by the Strutts. *Group M (c)* houses used a *Plan 12* form (figure 5.27).

#### *Group M (d)*

Sub-type *Group M (d)* only appears at Dukes Buildings, constructed in the late 1810s, approximately twenty years after *Groups M (a)-(c)* (see figure 5.18). This three-storey elevation comprises an off-centre doorway with single sash windows to the ground, first and second floors, all with plain stone lintels and sills. An additional window, which illuminates the stairwell, was added to No. 3 Dukes Building some time during the nineteenth century and is an isolated example. *Group M (d)* properties face onto the main A6 road, rather than Hopping Hill and are set behind a large walled garden with semi-circular coping stones and a flag-stone pathway leading to the front door. *Group M (d)* elevation was used with a *Plan 13* form (figure 5.28).

#### *Group N: double-fronted elevation*

Double-fronted arrangements were used on four separate occasions at Milford: Nos. 7-14 Well Lane (1790s), No.2 Dukes Building (c.1818), West Terrace, Hopping Hill (1820s) and East Terrace, Hopping Hill (1820s) (see figures 5.14, 5.29, 5.30 and 5.31). Consequently, this form of elevation appears more frequently here than in any other cotton workers' settlement in the Derwent Valley. Differences in the arrangement and distribution of windows between the three housing rows at Milford, means that three-subcategories are visible.

### *Group N (a)*

Dating to the early 1790s, the two-storey *Group N (a)* elevations appear only at Well Lane and comprise slightly off-centred doorway with single ground and first floor windows on either side (see figure 5.14). *Group N (a)* properties are set behind a small flagstone area and as such are the only type of housing in Milford to lack a formal walled forecourt area. The *Group N (a)* elevation was used with a *Plan 14* form (figure 5.32).

*Group N (a)* is stylistically similar to *Group J (a)* houses at Belper (see figure 4.4) and it is likely that these properties may have been constructed either simultaneously or as consecutive phases of work. The style of fenestration in the *Group N (a)* elevation differs between windows: of the two ground floor windows both are of sash form with the larger of the two having a segmental arched header and the smaller, a segmental-shaped stone lintel. At first floor level the larger window is again a sash window at eaves height with a projecting stone sill. The smaller first floor window is iron-framed with a notched-lintel and sill.

### *Group N (b)*

*Group N (b)* is specific to a single house, No.2 Dukes Buildings (see figure 5.29). Constructed on the end of the terrace of *Group M (d)* properties, *Group N (b)* is stylistically similar, comprising a three-storey elevation. However, the elevation has a central doorway with six large windows (three either side the doorway) arranged at ground, first and second floor level. In addition *Group N (b)* has a further three smaller windows at ground, first and second floor, immediately to the north of the doorway. These three smaller windows light the stairwell.

The *Group N (b)* property faces onto the main A6 road, rather than Hopping Hill and is set behind a large walled garden with semi-circular coping stones and a flag-stone pathway leading to the front door. The *Group N (b)* elevation was used with a *Plan 15* form (figure 5.33).

### *Group N (c)*

Use of the *Group N (c)* elevation is specific to the western-half of the back-to-back properties at East and West Terrace, constructed in the early 1820s (see figure 5.30). The three-storey *Group N (c)* form comprises a central doorway with large windows at ground, first and second floor to the south of the doorway and smaller windows at ground, first and second floor to the north of the doorway. As a result these houses are not arranged in mirrored pairs. The size of the windows reveals the interior arrangement of these properties, with the larger windows indicating the position of rooms and the smaller windows, the stairwell.

*Group N (c)* properties are set behind a small forecourt area with a stone-wall boundary. These boundary walls have been significantly altered in the later nineteenth and twentieth century and it is difficult to understand the original form. The *Group N (c)* elevation was used with a *Plan 16* form (figure 5.34).

### *Group N (d)*

*Group N (d)* appears along the eastern-half of the back-to-back properties at East and West Terrace, constructed in the early 1820s (see figure 5.31). The two-storey *Group N (d)* form comprises a central doorway with single ground and first floor windows to one side and two ground and first floor windows at the other. This meant that the arrangement was asymmetrical, reinforced by the different dimensions of each window within individual housing units. *Group N (d)* properties are set behind a small forecourt area with a stone-wall boundary although these have significantly altered in the later nineteenth and twentieth century. The *Group N (c)* elevation was used with a *Plan 17* form (figure 5.35).

### *Group O: The Bleach Houses*

*Group O* appears only once in Milford as a small terrace of properties along Chevin Road called The Bleach Houses (1790s) (see figure 5.12). Today, it comprises a much altered and complicated arrangement. The original form appears to have been simpler with three doorways, surmounted by segmental arched headers, corresponding to three housing units. It is possible that each house originally had a ground floor

window with a segmental arched header in the elevation. *Group O* properties open directly onto the street frontage and give the impression of a very basic form of housing. This is not consistent with the interpretation given in the UNESCO inscription documentation which states that these properties were used to house overseers. The plan used with the *Group O* elevation has not been determined within this thesis as interior access was not permitted.

#### *Discussion of exterior descriptions*

The typological assessment presented above identifies four distinct categories of purpose-built workers' housing with nine subcategories, based on differences visible in the exterior form. Despite obvious architectural differences, the properties were constructed to an underlying set of stylistic principles, reflected in having just four categories. However, the presence of nine subcategories, often corresponding to individual housing rows, also highlights the substantial diversity within these broader categories. It is evident that the diversity in the form of workers' housing seen at Milford represents a complex response to a unique set of circumstances which were peculiar to the Strutts in the 1790s-1820s. It is also worth remembering that the first phase of housing construction at Milford comes a decade after the first housing appears at Belper. In addition, unlike Cromford and Belper, the community at Milford was engaged in the finishing processes of dying and bleaching rather than cotton spinning: this was a first within the Derwent Valley.

The first phase of house-building at Milford in the 1790s was ambitious with a series of different broadly contemporary programmes of work constructed on both hillsides (Hopping Hill and Sunny Hill) overlooking the mill complex (*Groups L, M (a)-(c)* and *N (a)*). This initial phase of construction resulted in a disparate settlement across several locations and continued to characterise subsequent phases of house-building throughout the 1810s. Consequently, Hopping Hill is arranged as a series of larger programmes of work constructed over sequential building seasons. In contrast, Sunny Hill comprises a succession of smaller building projects which produced individual housing rows, such as Well Lane or Chevin Alley. In part, disparity between Hopping Hill and Sunny Hill housing is explained by differences in pre-enclosure land tenures

and the subsequent way in which land was purchased by the Strutt estate. However it is also apparent that a number of other significant socio-economic factors influenced the way in which the Strutts constructed their workers' housing at the site.

The construction of Hopping Hill (north), *Groups L (a)* and *M (a)*, in sequential stages during the early 1790s reveals that the first house-building programmes undertaken by the Strutts at Milford relied heavily on local pre-existing craft traditions. In particular, the treatment of window lintels and door surrounds shares strong parallels with housing in the adjacent settlement of Makeney, 0.8 km to the south-east of Milford. The exterior arrangement also borrows heavily from existing *Group H* housing forms at Belper, such as Mill Street, the Short Rows and Chevin View. Thus the study of individual housing units reveals a continuation of themes employed by the Strutts at Belper, and specifically the use of local building traditions to provide housing which met the accustomed standards of the intended occupants. Whilst the individual unit is unremarkable, the combined effect of the overall row is a bold visual statement. It is significant that the main façade of *Groups L* and *M (a)* housing is situated facing onto the original Matlock-to-Derby road, visible to the passing stream of tradesmen, travellers, visitors and mill representatives. As a result these houses, and by association the occupants, were prominent and open to public inspection and display. Thus the visual statement created by the overall Hopping Hill row impressed upon observers the success and stability of the Strutts as patrons and the cotton manufacturing businesses which created them. In other words, the Strutts were quite literally trading on their reputation by allowing the observation of both their houses and the activities of their occupants.

An analysis of the exterior housing arrangements at Milford has revealed that visual surveillance of occupants occurred through a system of peer observation. The use of long straight housing rows which opened onto broad access routes formed an essential component of the way in which occupants were monitored. This is evident throughout the construction of the workers' housing in the 1790s and in the arrangement of Well Lane (*Group N a*), a wide road which facilitated easy observation between neighbours. Additionally, the plain façade without demarcated forecourt frontages enabled free access outside individual properties with the opportunity to casually



observe the activities within the home. Consequently, the exterior form of Well Lane was one of a number of rows, including Hopping Hill (north), to facilitate a high degree of community or neighbourly self-regulation.

By the early nineteenth century; however, an examination of the exterior of the later *Group M (d)* houses (Dukes Buildings) reveals that the ability for the occupants to observe each other had diminished. The height of the walling between properties and the position of housing adjacent to the main A6 road indicates that the privacy of occupants was given greater credence over the display of the housing façade. Consequently this reveals a contrast between the way in which the exterior of 1790s houses were openly displayed as a reflection of the Strutts' achievements and the later 1810s-1820s properties which appear to reveal the interests of the occupants.

Another theme seen in the exterior form of housing at Milford is the introduction of innovation in the architectural form from the mid-1790s onwards. In particular, the use of a double-fronted housing design along Well Lane, *Group N (a)*, and the introduction of staircase and cellar windows at Chevin Alley, *Group M (c)*, are both crucial in understanding the development of early housing typologies of the cotton industry. The introduction of these new forms, which predate those at Belper, may represent the first involvement by William Strutt and help to understand the development of Milford as well as Belper and the wider Derwent Valley. As a result, arguably these classifications of housing demonstrate a greater level of innovation in exterior form than the larger terrace along Hopping Hill (north). Whilst the UNESCO inscription documentation pays these buildings only passing attention, archaeological analysis of the building fabric presented in this thesis, supports the interpretation that these properties represent the first occasion that the Strutts began to alter traditional workers' housing exteriors and include staircase and cellar lighting solutions. As a result, the exterior form of Chevin Alley may be viewed as the precursor to the widely acclaimed housing rows at Long Row and Crown Terrace, Belper.

### **Interior Descriptions of workers' housing in Milford**

Interest in the interior form of workers' housing at Milford has been extremely limited and often comprises only a brief comment on the basic plan of the more unusual

houses at Hopping Hill. This has been exacerbated due to the disparate character of the settlement and the failure to consider many of the properties at Sunny Hill as part of the workers' community (Eaton 2012, pers. comm.). Consequently, there has been no extensive archaeological or historical investigation of the interior of workers' housing at Milford and as such there is a lack of comment on the social and cultural impact of domestic architecture at the site.

The following section of this chapter offers a detailed interior assessment of workers' housing at Milford and sets out to examine the daily lived experiences of its occupants. Following the model established at Cromford and outlined in Chapter Three, this assessment uses a detailed archaeological survey of the building fabric to determine occupation patterns within the housing interiors. Where possible, this appraisal also continues to consider the provision of warmth, interior access, cellar, ceiling and floor arrangements within workers' housing.

Within all rows, the vast majority of houses had undergone some degree of alteration, largely comprising new flooring, ceilings, plasterwork and fenestration. Changes appeared at specific points throughout the history of the settlement, such as during the early-to-mid twentieth century as properties were purchased from the Strutt estate. According to homeowners at Milford the dilapidated condition of many of the houses during the early-twentieth century resulted in the Strutt estate selling off large numbers cheaply. These were then extensively renovated by new owners who removed obsolete fixtures and fittings. As such the majority of houses were modified prior to their listing in the 1970s. However, many residents have revealed dissatisfaction with the listing process and expressed concern that their properties were graded without interior investigation based on general assumptions regarding the type of interior fixtures and fittings likely to have been encountered. In addition, the substantial focus on the houses of Hopping Hill has resulted in a number of occupants in Sunny Hill properties undervaluing their historical significance as part of the workers' settlement. These properties have been more extensively altered in recent years than the Hopping Hill houses. Despite this the level of preservation at Milford is generally good with notable retention of fireplaces, staircases, doors, locks and windows. Consequently, whilst renovation has removed some of the original decor

and decorative schemes, there remains enough information to discern the original interior arrangements of all properties.

#### *Internal plans and arrangement*

A systematic investigation into the interior form of workers' housing at Milford has established similarities both along rows and between certain terraces. The repetition of housing units with regular dimensions and styles created standardised internal forms. Duplicating the same interior would have been an easier, quicker and cheaper way of building. As a result, the houses can be easily categorised according to plan-form, as listed below. As with the classification of the exterior form of housing above, it should be noted that this typology is a continuation of the form used at Belper (Chapter Four) and therefore starts with *Plan 10*. This is to enable inter-site comparisons of housing forms without confusion or duplication. Clear linkages between housing groups have been established in Appendix 1.

#### *Plan 10: The corner stair row*

*Plan 10* is present at Hopping Hill (north) and comprises a three-storey arrangement with two heated rooms on each of the ground and first floors, and a single room on the second floor (see figure 5.20). Situated in rows, *Plan 10* arrangements have windows to the front and back elevations and direct access to the front and rear of the properties (access to hillside rear garden via a small flight of stone steps). The winder staircase is positioned in the rear corner of the properties and is partitioned off from the ground floor room with a lath-and-plaster wall and latch door. Situated below the staircase in the rear ground floor room, the presence of a small stone thrawl indicates that this area may have been used for food preparation and storage. Between the ground and first floor rooms, a former doorway is evident in the rear elevation.

The majority of *Plan 10* properties have not been extended beyond the original footprint; however, a separate outside toilet has been constructed abutting the rear wall (figure 5.36). Evidently with two ground floor rooms, a separate kitchen or food preparation area was included in the original design. Consequently, the only Strutt-

coordinated investment to these houses was the addition of the outhouses as part of improved sanitation.

*Plan 11: Barrel-vaulted row*

Not extensively used in Milford, *Plan 11* houses only appear briefly in the early 1790s with the construction of Nos. 57-59 Hopping Hill (see figure 5.24). These properties originally comprised a three-storey and cellar arrangement with a single heated room on the ground and second floors, and two heated rooms on the first floor, accessed via a winder-to-straight-flight timber staircase along the side elevation. The form of the staircase across the house means that both first floor rooms can be accessed independently from the central landing. A small under-stairs cupboard is present in the larger of the two first floor rooms. The barrel-vaulted cellar is accessed from the ground floor room via a separate flight of stone stairs. Consequently this plan-form has two separate staircases. Due to the hillside slope, *Plan 11* houses have windows to the front and back elevations and direct access to the front and rear of the properties from both the cellar and ground floors.

*Plan 11* properties have all been extended in different ways, demonstrating that the work was undertaken individually, possibly by different occupants rather than the Strutt estate. In the majority of examples the extensions provided an additional room in the cellar and an additional ground floor room and first floor bedroom space. These denote changes in expected living standards during the late-nineteenth and early-twentieth centuries. A brick outhouse was constructed by the Strutt estate during the twentieth century in the garden space of each property. Due to the hillside slope of this land, the outhouses are at the lower ground floor level and are accessed via an exterior stone staircase.

*Plan 12: The simple block row*

This plan-form appears just five times at houses along Chevin Alley (see figure 5.27). Dated to the early 1790s, the plan is similar to examples from Long Row at Belper (Chapter Four) and originally comprised three-storeys with a single heated room on

each floor. *Plan 12* houses have windows to the front and back elevations and direct access to the front and rear of the properties. The form of the staircase is difficult to determine given the level of subsequent alteration; however, evidence from the plan of No.5 Chevin Alley suggests that the form may have been a winder staircase similar to the design of *Plan 10* properties. It has not been possible to ascertain the level to which *Plan 12* has been extended or altered beyond its original footprint.

*Plan 13: The rear staircase row*

*Plan 13* properties appear at Nos. 3-8 Dukes Buildings and are similar to *Plan 12* in that they comprise three-storeys with a single heated room on each floor (see figure 5.28). However, the position of the staircase is different in *Plan 13* properties and is more complicated, comprising a half-winder situated in the rear corner of the ground floor room to run as a straight flight between first and second floors. The staircase has a half-landing to allow access into the first floor room. As such the staircase is partitioned from all three rooms with a lath-and-plaster division and latch door.

A proportion of *Plan 13* houses have been extended to the rear to provide a small kitchen extension and demonstrate that the work was undertaken individually, possibly by different occupants rather than the Strutt estate.

*Plan 14: double fronted plan- Well Lane*

Used exclusively at Nos. 7-14 Well Lane, *Plan 14* houses comprise two unequally sized ground and first floor rooms separated by a central winder-to-straight-flight staircase and an under-stair cellar (see figure 5.32). Both rooms have front windows, although only the smaller ground floor room appears to have had an original rear window. Access to the rear of the property is possible through the larger ground floor room.

Where present, rear extensions to *Plan 14* houses are individual in character and indicate that they were added by householders as the properties passed into private ownership, rather than undertaken by the Strutt estate. In the majority of examples the extension has been added to provide a bathroom, for example No. 11 Well Lane.

Other properties, such as No. 9 Well Lane, have been sub-divided at first floor in order to install a bathroom between the staircase and the larger of the two bedrooms.

*Plan 15: double fronted plan- Dukes Building*

This plan appears just once at Milford at No.2 Dukes Buildings (see figure 5.33). Comprising three-storeys with two heated rooms on the ground and first floors and a single room at the second floor all arranged off a central landing. The staircase runs as straight flights along the rear wall of the property. Notably, the southern-most of the first floor rooms has a barrel vaulted ceiling.

*Plan 16: double fronted plan- West Terrace*

*Plan 16* properties appear in the western-half of the East and West Terrace and comprise three-storeys with a single heated room on each floor and a partitioned winder staircase to the south end of each property (see figure 5.34). Each house was provisioned with a cellar, although its location varied. In two-thirds of properties the cellar is located on the ground floor built into the hillside and perpendicular to the ground floor room. In one-third of properties the cellar is situated below the stairwell. All cellars are of the same dimensions, barrel-vaulted and were originally externally lit.

*Plan 17: double fronted plan- East Terrace*

Used exclusively in the eastern-half of the East and West Terrace, *Plan 17* houses comprise two unequally sized ground and first floor rooms separated by a central winder staircase (see figure 5.35). Each house was provisioned with a cellar below the ground floor room and accessed from the stairwell. As a result, the smaller of the two ground and first floor rooms is raised and accessed via three steps.

*Interior access*

Chapters Three and Four have discussed the importance of considering the access arrangements of workers' housing in order to determine the lived experiences of occupants who resided within the properties. Subtle differences in the forms of access and organisation of the rooms therefore had important consequences for the way in

which the houses were used. Consequently, as Chapter Four has also demonstrated, it is important to establish differences between access as intended by the patron and changes made thereafter. This is particularly pertinent to the study of examples at Milford where properties were significantly altered after a period of dereliction. This chapter will now explore the development of interior access within workers' housing at Milford and begins by analysing the movement of people between floors.

### *Staircases*

The staircases seen in workers' housing at Milford are variations of two different arrangements: winder and winder-to-straight-flight. All configurations were partitioned off from the ground and first floor rooms and were positioned so that they were not next to the living areas of neighbouring properties (except *Plan 16*). This formula, aimed at reducing the noise from using the stairs, is well attested throughout the Derwent Valley and appears with different staircase types at both Cromford and Belper. Therefore, within workers' housing at Milford staircases were arranged: back-to-back in adjacent properties in *Plans 10* and *11* (see figures 5.20 and 5.24); against the rear elevation as seen in *Plans 13* and *17* (see figures 5.28 and 5.35) or positioned centrally between two rooms as in *Plans 14-16* (see figures 5.32-5.34). The complexity in staircase arrangements at Milford suggests that the provisions were experimental and that whilst the reduction of noise was a particularly important consideration, there was no consistency in how this was delivered. Consequently, the form of the staircase impacted on the daily experiences facing occupants as different configurations altered the levels of domestic privacy and independence.

The earliest and latest two phases of workers' houses at Milford were all provisioned with types of winder stairwell, in *Plans 10* and *15-17*. However, there are considerable differences between these housing arrangements which require further consideration. The form of staircase in *Plan 10* houses (1790s) comprises: a wooden latch door at the foot of the staircase, a balustrade at first floor landing and a full-height balustrade at the head of the staircase (although this has often been removed, for example No. 12 Hopping Hill) (figure 5.37). This staircase is consistent with other known late-eighteenth century examples in Derbyshire, including Long Row (north)

in Belper (Chapter Four). Situated on the turn of the stairs between first and second floors is an in-built timber box with hinged lid (figure 5.38). Whilst this box was presumably for storage, its position away from a heat source and against an exterior wall, may indicate that it was not suitable for bedding or clothing. Notably, in contrast to housing from Long Row, *Plan 10* properties at Milford do not have a semi-subterranean cellar below the staircase. It is likely that the lack of cellar reflects that these houses were built following the hillside, meaning that extra foundation cutting was not required to the same extent as at Belper.

The configuration of *Plan 10* is unique within the Derwent Valley and is the only occasion in which the staircase formed part of the exterior access arrangement. Situated mid-way between the ground and first floors, a blocked doorway and worn stone step are clearly visible as the original rear access-point into these houses (figure 5.39). Anecdotally, Farmer (2013, pers. comm.) has suggested that entry into the garden was facilitated from this doorway by a bridge-like structure. However, the placement of outhouses over the doorway in the early-twentieth century ensured the systematic removal of any early structure. Additionally, in the absence of photographic or documented evidence it is difficult to determine the exact form of the bridge, especially as it is not readily identifiable within the eighteenth century building accounts for Hopping Hill. Given the gradient of the hillside it is also noticeable that many of the rear gardens were far higher up the hillside than the trajectory of the staircase doorway. Consequently, a step arrangement, similar to the ones in use today, may have been the most appropriate form of access into the garden area (figure 5.40).

The combination of an external doorway and an interior staircase meant that ‘exterior access’ and ‘access between floors’ was locked into a single design. As such the staircase of these accommodation-only properties was integral to patterns of daily life, for instance, in the removal of domestic refuse into the garden and bringing fuel into the house. Arguably, this added an increased inconvenience for occupants over those with exterior rear access via the ground floor room. Similar staircase doorways have been noted at Lancashire and Nottinghamshire workshop-dwellings where they facilitated access for additional workers into upper-floor loomshops without intruding



on the domestic sphere of the house. In the absence of loomshops at Hopping Hill, the arrangement looks to have been a response to the need to give occupants direct access to the rear of houses, whilst taking into consideration the gradient of the hillside and without investing in additional cutting or foundation work at the building stage.

The design of the staircase facilitated independent access for occupants to the first and second floor rooms without passing through the front door or ground floor space. This is in contrast to all other workers' houses within the Derwent Valley. Similarly to Belper, the Census records for 1841 reveal that many Milford occupants had lodgers additional to household members. It is highly likely that the staircase and doorway arrangement contributed to this in that individuals could enter and exit the property without walking through rooms which they did not occupy. Likewise, members of the same household on shift-work had similar freedoms. The design, therefore, had opportunities and challenges for households in that it facilitated a more discrete access to the staircase and bedroom spaces, thus reducing the degree of separation between the bedroom space and the exterior of the house.

Originally the staircase of *Plan 10* properties relied upon light from the ground, first and second floor rooms. This would have left the stairwell exceedingly dark, as the ground and first floor rooms were partitioned with latch doors. It was only when the exterior staircase door was blocked in the twentieth century and a small window inserted into the former opening, that the stairwell was lit to the same extent as the original design of late-1790s Strutt-built properties at Long Row and Crown Terrace, Belper (Chapter Four). Superficially, this suggests that the staircase was ill-designed for its intended function and inferior to the later model seen at Belper. However, the current author argues that differences in staircase models reflect the Strutts' wider approach to workers' housing, in which the design was reactive to the specific requirements of the setting, occupants and patron at the time of construction. This, therefore, resulted in a series of individual housing rows as these three factors varied. Consequently the staircases of *Plan 10* houses were designed in order to overcome the immediate problem facing occupants, namely individual access to the rear of houses constructed on a steep incline.

The level of patronly-consideration given to providing a suitable staircase solution within the *Plan 10* properties is further highlighted by the high quality of staircase furniture. Comprising a simple timber-framed winder with a central vertical upright, plain balustrade, simple curved handrail, in-built storage box and full-height timber balustrade at the head of the staircase, the arrangement was both substantial and specific to the style of property (see figures 5.37 and 5.38). It is possible that the balustrade in particular was a reaction by the Strutts' to mitigate the dangers of an unlit stairwell, as discussed in Chapter Four in relation to the 1780s properties at the Short Rows. Consequently, despite the lighting, the staircase acted to facilitate good quality access between floors which fostered a level of independence and privacy not previously seen in examples of Strutt-built workers' housing.

Use of the winder staircase form at Milford next appears in the single example of a *Plan 15* house at No. 2 Dukes Building and shows a significant development (figure 5.41). Partitioned from the inner ground floor by lath-and-plaster divide, the arrangement was accessed from the rear corner by a latch door. In contrast to the winder staircase in *Plan 10* properties, the *Plan 15* stairwell was originally illuminated with exterior windows at both first and second floor included in the exterior facade. As such, this property (c. late-1810s) was constructed with similarities to the earlier *Group I* houses at Belper (c. late-1790s). However, this *Plan 15* variation facilitated the independent access of the two first floor rooms and consequently provided a high level of privacy for occupants (figure 5.42). As such it is a significantly satisfactory staircase solution providing both light and privacy for the householders using it.

The staircases of the East and West Terrace (1820s) also conform to a winder model. Within the West Terrace (*Plan 16*), the staircase is accessed from the rear of the ground floor room and is partitioned using a lath-and-plaster division and latch door. Lit by a small window in the front elevation at first and second floor, the staircase arrangement and furniture is stylistically similar to *Plan 10*, with a simple balustrade (figure 5.43). In contrast to all other properties in Milford, these staircases are not positioned back-to-back with adjacent houses. This meant that the staircase of one property was designed back-to-back with the living and sleeping areas of the next.

However, the thickness of party walls and the positioning of flues arguably compensated and acted to limited noise-penetration between properties. The positioning of the staircase in East Terrace properties (*Plan 17*) is very similar to the overall arrangement seen at the *Plan 15* house, comprising a winder staircase against the rear elevation and partitioned from the room with a lath-and-plaster division and latch door. At first floor, the arrangement is lit by a small window in the front elevation. As such, independent access for the two bedroom spaces from a central landing is facilitated. Consequently these properties offered a high standard of staircase solution with equivalent level of lighting and privacy as seen in the *Plan 16* houses.

The second type of staircase visible in workers' housing at Milford is a winder-to-straight-flight arrangement as noted in *Plans 11, 13 and 14*. The staircase within *Plan 11* properties (c.1970s) comprises a complex arrangement of three individual winder-to-straight-flight staircases. The first of these permitted access between the ground and cellar floors and comprised a chisel-dressed stone staircase running front-back along the side elevation with a half-winder at the foot (figure 5.44). Partitioned from rooms by a lath-and-plaster dividing wall and latch doors the provision of this staircase ensured that occupants had secure access into cellars. Consequently, it suggests that these cellars were integral to the occupants' daily lives and that they were accessed often, presumably as food storage areas as seen at North Street, Cromford (Chapter Three). The use of stone steps in cellars is well attested throughout the Derwent Valley and Derbyshire.

The second of the three staircases in *Plan 11* houses provided access between the ground and first floors. Situated against the front door and initially running along the side elevation above the route of the stone stairs before the initial winder turn, this timber staircase ensured that the two first floor rooms could be accessed independently from a small central landing. A third winder-to-straight-flight staircase, running off this landing area, provided access to the second floor room. As such, this type of arrangement prevented noise from reverberating between neighbouring houses.

At ground and first floor level the *Plan 11* staircase was divided from the rooms with a lath-and-plaster wall and timber latch door (figures 5.45 and 5.46). In contrast, the second floor room had no such division and was open with a simple balustrade (figure 5.47) stylistically similar to examples at Belper, such as Long Row (south-west) (Chapter Four). It is therefore plausible that the second floor room of Milford housing was similarly used as a dormitory-style sleeping area for children within the household. The *Plan 11* staircase was not lit by an exterior light source, instead relying on lighting from the first and second floor rooms. In this respect it is comparable to the winder arrangement used in contemporary *Plan 10* houses. This suggests that by the early 1790s, the Strutts were commissioning workers' housing that prioritised both the separation of the staircase from the ground and first floor and the construction of independently accessed bedroom spaces, at the expense of stairwell lighting. This type of staircase was an efficient way to maximise floor space, reduce noise and enable a more private form of living for occupants living within these properties.

A different form of winder-to-straight-flight staircase is evident in the contemporary two-storey *Plan 14* houses. Here, the arrangement comprises a timber staircase located centrally within the house plan. Partitioned from the ground and first floors with lath-and-plaster walls and timber latch door at ground floor level (figure 5.48), once again the design facilitated independent access of the two first floor rooms from a central landing space. Similarly to the *Plan 10* and *11* arrangements, *Plan 14* houses did not have an external light source to illuminate the stairwell. The recurring use of the partitioned winder-to-straight-flight staircase and central landing demonstrates the importance of separated living and sleeping areas for occupants. As a result a staircase arrangement which could facilitate a high level of occupant privacy was perhaps the most constant feature within Milford workers' housing of the 1790s.

Use of the winder-to-straight-flight staircase continued into the late-1810s with the construction of the Dukes Buildings (*Plan 13*). The arrangement is similar to *Plan 11* comprising a lath-and-plaster partition and latch door leading from the corner of the ground floor room. This staircase then ran as a straight-flight along the rear elevation of the property to provide access to the first and second floors (see figure 5.28).

Consequently the form ensured that the single first floor bedroom remained private whilst at the same time preserving an open access to the second floor room, with simple balustrade division. However, the staircase of *Plan 13* properties was different to *Plan 11* in that its location within the house-plan enabled the stairwell to be lit by an exterior window in the rear elevation. This introduction of exterior lighting to these stairwells again confirms that by the first decade of the nineteenth century, the Strutts' commissioned designs which facilitated both adequate lighting and privacy.

Given the variation of staircase forms surveyed in workers' housing at Milford, it is disappointing that access has not been possible into any properties along Chevin Alley or 'The Bleach Houses'. The interior arrangement of Chevin Alley is of particular interest in order to ascertain the development of lit stairwells within the Strutts' workers' housing traditions. Crucially, this housing row could prove fundamental in understanding the transition to the housing forms seen at Long Row and Crown Terrace, Belper (Chapter Four). It therefore represents an area recommended for future research.

Between the early-1790s and 1820s staircase designs within workers' housing at Milford varied considerably. However, underlying this variation two strong trends are evident: the provision for independent access of bedrooms spaces, and the emergence of externally lit stairwells. From the first phase of house-building at Milford, both the winder and winder-to-straight-flight staircase forms facilitated the separation of living and sleeping areas of workers' houses. As such, these properties supported a segregated form of living with the potential for members of the household to reside more independently and privately. In this respect Milford properties gave a greater sense of seclusion than the broadly contemporary houses at Belper. In contrast, the lack of exterior illumination in stairwells at Milford until the later-1810s suggests that lighting was not as important an issue to occupants and was therefore not readily invested in by the Strutt estate. Consequently, the arrangement of the staircase suggests that the designs used by the Strutts responded first and foremost to the needs of occupants and that privacy was prioritised above all. As noted in Chapter Four, these characteristics parallel wider transformations within the domestic sphere, visible as the increased division of interior space.

### *Room divisions*

The subdivision of workers' housing at Milford was not as extensive as seen at either Cromford or Belper. This indicates that the original plans used at Milford (with two ground floor rooms, partitioned and private first floor bedrooms(s) and upper floor bedroom space) largely reflected the general needs of householders from the 1790s to present day. The most frequent observable alteration was the subdivision of bedroom spaces in the mid-to-later twentieth century to facilitate an upstairs bathroom arrangement, for example No.4 Dukes Buildings. As such, this modification was in keeping with other smaller alterations including: the early-twentieth century addition of outhouses to the rear of *Plan 10* properties (see figure 5.36) and small rear kitchen extensions to *Plan 13* properties (figure 5.49). Consequently, room divisions at Milford conform to a noticeable pattern in which changes appear to have been motivated by improvements to sanitary conditions.

### *The provision of warmth*

As apparent from the analysis of workers' housing at both Cromford and Belper, the provision of warmth is an important indicator of the living standards and daily experiences facing occupants. Evidence from Milford indicated that the provision of fireplaces was substantial and comparable to Belper with every room (apart from cellars) having a heat source. These were upgraded by the Strutt estate throughout the nineteenth century as new technologies gave more efficient methods of heating. However, it is also evident that changes were not made too frequently, indicating that these fireplaces were not replaced as fashion dictated. In contrast to Strutt-built housing at Belper, a proportion of Milford houses (*Plans 11, 16 and 17*) were not constructed with the more economical back-to-back flue arrangement (see figures 5.24, 5.34 and 5.35). In *Plans 11, 16 and 17* the flues were put consistently at one end of property units, resulting in a more expensive construction. It is likely that this arrangement was a result of the hillside slope on which these properties were built, and a reflection that cautious builders preferred the weight of the flue arrangement to be distributed at regular intervals for each house rather than concentrated per pair of properties. In all houses, the largest fireplace was located in the side elevation of the

principal ground floor room. In *Plan 11* properties, and houses where the flue-stack was placed back-to-back, this was positioned off-centre; however, in *Plans 16* and *17*, the ground floor fireplace was situated more centrally.

The style of the ground floor fireplace varies across housing types. The arrangement seen in *Plans 10* and *13* is comparable to Belper properties and comprises a plain collared lintel with finely chisel-dressed jambs sat directly on the original floor surface (figure 5.50). Subtle differences in the form of lintel indicate that a number of local stonemasons carried out the work. In contrast to the overall uniformity of *Plan 10* properties, there are noticeable stylistic differences within *Plan 11* houses. The arrangement at Nos. 57 and 58 Hopping Hill is comparable to *Plan 10* (figure 5.51); however, at Nos. 61-63 Hopping Hill the fireplace comprises a stone lintel with chamfered edge, sat on brick jambs (figure 5.52). This difference presumably reflects that *Plan 11* properties were constructed in two stages and that as small scale building projects it is likely that the first available stonemason constructed the lintels according to his own judgement. Access was not forthcoming to survey fireplaces of *Plan 12* properties, and so the arrangement remains unknown. Additionally, given the extent of modern alterations and plasterwork, it was not possible to ascertain the original arrangement of the fireplace used in *Plans 14* and *15*. The arrangement at *Plans 16* and *17* is similar to Nos. 61-63 Hopping Hill albeit more refined with diagonal chisel dressing (figure 5.53). Consequently, despite some differences it is evident that the ground floor fireplace form used at Milford was derived from a central underlying style which was also apparent in Belper properties as well as the wider Amber Valley. This suggests that the design commissioned by the Strutts reflected existing local building traditions used within the area.

Where visible, such as No. 23 Hopping Hill, the soot patterns on the fireback indicate the use of an open range and are typical of later-eighteenth century arrangements (figure 5.54) (see Chapter Four). This is supported in the building accounts for Hopping Hill (DRO D6948/8/1) which record the purchase of individual range elements. Anecdotal evidence suggests that an original range survives within one of the houses on Hopping Hill. The earliest arrangement identified during the building survey work undertaken as part of this thesis was the later nineteenth century range at

No. 26 Hopping Hill (figure 5.55). It is likely that this range is the source of the anecdotal account.

*Plans 10, 11, 14 and 15*, had an additional rear ground floor room which was provisioned with a smaller fireplace (figure 5.56). Today these areas are often used as kitchens meaning that the retention rate of fixtures and fittings, such as these smaller fireplaces, is minimal. Furthermore, as the building accounts offer no further details (DRO D6948/8/1), the original design, date and consistency of these fireplaces remains largely speculative. However, No. 9 Hopping Hill has a stone lintel *in-situ* which suggests that the secondary fireplace was smaller but comparable to the principal ground floor arrangement (see figure 5.56). The similarities of this fireplace with the first floor arrangements at North Street, Cromford (Chapter Three) and Mill Street, Belper (Chapter Four) implies that the style was a regional standard and used in smaller rooms in the late-eighteenth and early-nineteenth century.

The position of the first floor fireplace is visible in the ground floor room of properties as a curved brick arch (often rendered) projecting out from the chimney breast (see figure 5.51). This was also noted at Belper and occurred because the arrangement of flues necessitated the first floor fireplace being on a different alignment to the ground floor fireplace. Consequently, additional structural supports to the first, and second floor hearths, were needed. The absence of these within the East and West terrace confirms that they were a pragmatic solution to a structural problem. Crucially, by the 1820s, house building methods at Milford had changed so that the first floor hearth was subtly supported by one of the two arched recess in the ground floor room (see figure 5.53). This meant that the overall symmetry of the principal living space of these houses could be preserved and suggests that it was a key concern in the design of these properties.

Fireplaces in the first and second floor rooms are not as well accounted for in Milford, as the majority were removed when central heating was installed into properties during the mid-twentieth century. Similarly to Cromford and Belper houses, in many cases first and second floor fireplaces are now often only recognisable as blockings within the chimney breast and by the presence of a hearth against the floorboards.



This is especially the case in *Plans 13-17* where the removal of the bedroom fireplace created enough additional space for modern furniture to be accommodated in the room. This makes any assessment of the character of bedroom heating problematic as it is difficult to determine whether the Strutt-estate undertook coordinated programmes of work or occupants made their own individual changes.

The location of first and second floor fireplaces within workers' housing at Milford is interesting and requires further consideration. Within housing rows constructed in the 1790s (*Plans 10, 11, and 14*), the fireplace is positioned off-centre in the side elevation as a pragmatic solution which allowed the room to be heated evenly. In contrast, housing dated to the late-1810s and 1820s (*Plans 13, 15, 16 and 17*) was arranged so that the first and second floor fireplaces were situated in the corner of the room. It is likely that this positioning meant that the fireplace was less efficient to heat the room; however, as discussed above it enabled the ground floor room to take on a more symmetrical appearance. This serves to highlight the importance of, and consideration given to, the arrangement of the living space within workers' housing. The development indicates that by the early nineteenth century a greater emphasis was placed on ensuring that the interior form of workers' housing conformed to wider conventional aesthetics of domestic design.

One of the earliest surviving types of first floor fireplace is visible in *Plans 10 and 14*, and comprises a dressed stone lintel and jambs (figure 5.57). The style is not dissimilar to the ground floor rear examples described above and indicates a high level of consistency in the fixtures supplied to workers' housing at Milford. Noticeably, the same fire surround is present in the late-1810s housing of *Plan 13*. Given the soot patterning at No. 37 Hopping Hill, it is probable that this form of surround was used with a hob-grate inset, similar to the type noted at Belper (figure 5.58). Unfortunately, these hob-grates are not recorded in the surviving proportion of building accounts and with one possible exception at No.1 Hopping Hill, all original hob-grates have been removed from Milford houses. Additionally, the authenticity of the example seen at No.1 Hopping Hill is not secure and may be a later insertion added when the chimney breast was reconstructed during the twentieth century. Consequently, whilst the presence of a first floor fireplace as part of the original

designs of housing is certain, much of the detail regarding their form remains speculative.

Mid-nineteenth century cast-iron insets were frequently observed within the first and second floor rooms of all housing types. One of the most frequently surveyed styles, also noted in Belper, comprises an arched inset with a central keystone, simple bead decoration and register grate (No. 60 Hopping Hill and No.11 Well Lane) (figure 5.59). The prevalence of this fireplace at both sites demonstrates that the Strutt estate undertook large-scale programmes of upkeep and modernisation and that these occurred simultaneously at Belper and Milford. Furthermore, its almost universal application across houses of different designs indicates that by the mid-nineteenth century the Strutt estate was investing in their properties to the same extent. Nonetheless, the presence of a smaller number of different cast-iron inset designs complicates this interpretation. Specifically, in the absence of large numbers of surviving examples, it is difficult to understand the selection process behind the design of fireplaces. For instance, it is possible that tenants had a degree of influence in the choice of design, perhaps paying a premium to select a preferred style. This suggests a level of occupant choice and interaction between occupant and patron. However, stylistic variations may also represent different phases of upgrade and the availability of fireplace designs at the point when the Strutts chose to renovate their properties. Lastly, based on anecdotal evidence from residents who initially rented their homes from the Strutt estate, different styles may be the result of occupants proactively requesting renovations, which then triggered larger-scale modernisation schemes.

The provision of warmth within Milford housing reflects a complicated process of large-scale and coordinated programmes of work as well as smaller more individualised investments. As such, the provisions are comparable to those within Belper housing and reflect that the patrons had similar intentions, and made the same arrangements, at both their industrial sites within the Derwent Valley. Consequently, the choice of fireplaces at Milford indicates that the Strutts were committed to providing quality fixtures but were neither elaborate nor wasteful in their response.

### *Floors, ceilings and doors*

At Milford a considerable proportion of the original floors, ceilings and doors have been preserved and give an impression of durable, good quality and practical fixtures. The ground floor flooring is consistent across *Plans 10* and *11* (figure 5.60) with a pattern of alternate red and black quarry tiles similar to those visible at Long Row (north), Belper. Given the prevalence of clay deposits in the Amber Valley it is envisaged that this type of tile would have been a more cost effective solution than traditional Derbyshire flagstones. Unfortunately it has not been possible to determine the original ground floor surface in *Plans 12-17*, as in all examples surveyed as part of this thesis, the flooring was either a modern replacement or hidden beneath carpet or laminate. Whilst it is probable that at least *Plans 12* and *14* were also provisioned with similar red and black quarry tiles, at present this is only a proposed hypothesis. Flooring in the first and second floor rooms has also survived to a higher degree than in Belper and Cromford properties. The arrangement comprises broad timber planking similar to the form of the staircase box in *Plan 10* houses (figure 5.61). The style of floorboards is consistent throughout all 1790s and 1810s houses, running across the ceiling joists and secured by square-head nails. The presence of a similar arrangement within the 1820s houses is only recorded anecdotally by residents who replaced the original boards in the 1970s. As such the floorboards used at Milford appear typical for the Derwent Valley. However, as highlighted in Chapter Four, it is challenging to understand the impact of these flooring solutions in relation to workers' experiences, especially in terms of the use of soft-furnishings, such as rugs.

Original ceiling joists are also well accounted for within Milford houses. It is evident from analysis of surviving fabric, in conjunction with the building accounts (DRO D6948/8/1), that very few *Plan 10* and *11* houses have been altered from the date of construction (see figure 5.51-5.53). Furthermore, the style of ceiling joists are comparable to those used at Long Row (north), Belper. This indicates an overall established and standardised approach to the construction of properties at both Strutt-built sites. Again similarly to Belper, the ceiling joists within Milford properties conform to two different categories; those which run across the width of the houses (Nos.1-54 and Nos.57-59 Hopping Hill and 1-5 Chevin Alley) and those which run

front-to-back (Well Lane, Nos. 61-64 Hopping Hill, the Dukes Buildings and East-and-west terrace). This variation looks to have been the result of individual building teams working on certain housing rows and reflects subtle differences in local building traditions rather than fundamental distinctions between housing types. This is evident in the character of the roof structure which remains consistent throughout workers' housing across all four Derwent Valley sites and comprises two roughly cut purlins supporting weatherboarding above.

The style of internal doors within Milford housing varies according to the date of construction. Those built in the 1790s, such as *Plans 10-12* and *14*, all have a three-plank latch-door (see figure 5.45 and 5.46); however, rows dating to the late 1810s-1820s, including *Plans 13* and *15-17*, are fitted with a five-plank latch-door of the same style noted at Long Row, Belper. The consistent use of standardised doors within houses of the same phase indicates that the Strutts operated a very coordinated and systematic process of procurement and construction. The high retention rate of these doors throughout the nineteenth and twentieth century is a notable contrast to Belper and reflects the relative infrequency of alterations to the interior of Milford houses. Consequently, there has been little justification to replace doors and so the original versions remain. Where original doorways have been replaced, such as No. 5 Chevin Alley, they have been substituted with glazed units indicating that occupants have sought to increase the amount of light between rooms.

#### *Fixtures, cellars and outbuildings*

As established in Chapters Three and Four, the provision of cellars within workers' housing in the Derwent Valley was only undertaken when practical opportunities presented themselves in the construction process. As a result, only *Plan 11* and a proportion of *Plans 16-17* were constructed with cellar arrangements (figure 5.62). Today, all cellars surveyed were revealed to be heavily modified from their original form, having been renovated as kitchens or bathroom spaces. Consequently, only the basic plan of the cellars is discernible. *Plan 11* properties had a barrel-vaulted cellar accessed via stone steps with exterior lighting and access point. As such these represented a high quality investment and were not dissimilar to those seen at North

Street, Cromford. Similar barrel vaulted cellars are visible in *Plan 16* houses albeit without exterior windows. These are accessed immediately through the principal ground floor room.

It was not possible to access cellars belonging to *Plan 16* or *Plan 17* properties. Melville and Partners (2007, 31) note that *Plan 17a* cellars were provisioned with a stone thrawl along the north wall, as well as shelving against the staircase arrangement. Although they fail to describe the form of the cellar, their description is comparable to many early nineteenth century Derbyshire houses, as discussed further in Chapter Four. Consequently, it is probable that *Plans 11, 16* and *17* were also provisioned with stone thrawls and it is likely that these were similar to those seen in the rear ground floor room of *Plan 10* properties (figure 5.63). The constant provision of stone thrawls, either with or without cellar situation, appears to indicate that their use was becoming a standard expectation within Milford houses.

In-built storage cupboards are also commonplace within Milford properties and are evident in the principal ground floor rooms of several houses, including: *Plans 10, 11* and *13*. Adjacent to the ground floor fireplace of *Plan 10* houses, a segmental arched recess above is likely to mark the position of a former inbuilt cupboard (figure 5.64) and is comparable to examples at Crown Terrace and Long Row, Belper. A similar recess, but without the segmental arched header, is noticeable in *Plan 11* properties (figure 5.65) and a larger recess is observable in *Plans 16* and *17* (see figure 5.53). In all examples, these recesses provided a storage area which did not reduce the available floor space of the room, which highlights the longevity to workers' housing fixtures and fittings within the Derwent Valley. In addition they also demonstrate that the houses were built with a nod to more classical or general late-eighteenth century interior designs.

The use and type of inbuilt cupboards in the first and second floors varied between housing plans and appears to reflect differences in the form of the staircase. In *Plan 10* properties the use of a generously spaced winder arrangement enabled the unique staircase box to be situated at the top of the house (see figure 5.38). In contrast, the form of the staircase between the first and second floors of *Plans 11* and *13* facilitated

a small walk-in cupboard storage area within the principal first floor bedroom. These storage solutions offered different arrangements for the householders, especially in terms of access, and may have been used very differently between houses. In every case, however, this type of storage would not have been a vast expense for the Strutts to bear against the overall constructional cost of the properties. Yet, their presence indicates that the minute details of these houses were planned according to, and had knowledge of, the needs of the average occupants. Consequently, and following Unitarian principles, every part of the housing design had a useful and utilitarian function.

Outhouses and the provision of adequate sanitation arrangements is a strong theme within Milford workers' housing and shows heavy patron investment. Evidence from cartographic sources dating from the early 1810s and 1820s demonstrates that each house was provisioned with their own outhouse facility (figures 5.66 and 5.67). Specifically, the Strutt estate map of 1820 (DRO D1564/27) shows Nos.1-28 Hopping Hill with semi-detached outhouse structures arranged halfway down the rear garden and against the garden boundary. In addition, anecdotal evidence from Hopping Hill residents reveals that they commonly position their vegetable patches at this point to take advantage of more favourable growing conditions! The outhouse arrangement for *Plan 10* appears comparable to the facilities provided in *Plan 11* houses, at Chevin Alley (*Plan 12*) and the Dukes Buildings (*Plans 13* and *15*). In contrast, Nos. 31-45 Hopping Hill had an additional outbuilding positioned at the end of the garden as well as a semi-detached outhouse structure arranged halfway down the rear garden. Tentatively, these additional outhouses at the end of the garden may have been coal houses accessed via the back lane. It is possible that the inclusion of the second outbuilding was to appease against the fact that these properties had a vastly smaller garden space than Nos.1-28 Hopping Hill.

The sanitation arrangements at East-and-West terrace have been analysed in some detail by Peers (2010, 94) who notes that earth closets for each property were placed adjacent to the walkway of the gardens (DRO D1564/27). Only one of these earth closets has survived: No.1 West Terrace, and comprises a stone outbuilding with slate roof (figure 5.68). In essence it appears very similar to the documented outhouses

constructed at Long Row, Belper (DRO D6948/8/3). Additionally at the East-and-West terrace other features of daily life are observable, such as the presence of a 'coal drop-off point'. Evidence for its use, based on oral accounts, has been described by Melville and Partners (2010, 23). However, it must be stressed that these accounts date from the early twentieth rather than nineteenth century.

### **Form, style and planning of workers' housing in Milford**

The above sections have analysed the forms of workers' housing at Milford and reveal them to be very diverse, especially regarding the exterior style and interior arrangements. Developing on from themes first identified in Chapter Four, Milford fits within a pattern of patronly-engineered experimentation in domestic architecture. As evidenced above, many of these developments were made to the benefit of the occupants and aimed to improve their living conditions by making daily domestic activities easier. As a result, these houses also reveal a consistent array of fixtures and fittings to facilitate householder living. Consequently, workers' housing at Milford appears similar to Belper in that these properties were constructed as a result of an intricate dialogue between: the financial burden of house-building; the ideological character of (and genuine interest by) the patrons and the expectations of the occupant tenants. The remainder of this chapter will now consider the economic-socio-cultural impact made by this building programme and will evaluate the houses with reference to the key themes of this thesis, as outlined in Chapter One.

### **Milford housing as industrial units**

Milford represents the first Derwent Valley community established specifically for cotton bleaching and dyeing processes. Despite this, the workforce did not need to be any more specialised than that employed by the Strutts in their spinning mills at Belper (Fitton and Wadsworth 1958, 295 & 297). At Belper, the Strutts were able to accommodate this unskilled workforce in an initial phase of modest houses, in Mill Street and the Short Rows. However, at Milford ten years later, workers were housed in properties which demonstrated a higher level of patron investment, with rows along Hopping Hill, Chevin Alley and possibly Well Lane. This difference appears to reflect the industrial position of the Strutts as more financially secure by the early 1790s, as

well as the fact that they needed to work harder to attract workers to the rather isolated, hamlet-sized settlement of Milford. In other words, by the time of the purchase and construction of Milford, the Strutts were operating within an increasingly competitive textile market (Fitton and Wadsworth 1958, 232-233). Consequently, the subsequent form of the workers' houses was a pragmatic reaction to the changing needs associated with cotton manufacture.

Chapter Four has already identified the problems associated with determining industrial use in accommodation-only types of workers' housing. As a result, it is again difficult to establish the extent to which Milford properties may have been used within the finishing processes of manufacture (Fitton and Wadsworth 1958, 295 & 297). Anecdotal accounts reveal that by the early twentieth century, women within Hopping Hill houses had employment through the Strutt estate to undertake 'seams-making' and 'chevining' work within the living room of their homes. These accounts also argue that such work was more prevalent at Milford, given its use as a dying and bleaching works, and that the Strutts operated a collection service from these women before taking the finished goods up to Belper to be distributed (Hopping Hill resident since birth 2012, pers. comm.). Whilst these anecdotal accounts are approximately 100 years after the construction of Milford settlement, they do serve to remind that these settlements and sites were managed as a larger industrial unit under single ownership. The development of housing forms and standards used across the two sites reflects this.

### **Living standards, model housing and social ordering**

#### *Living standards*

As part of the historical research agenda associated with the Strutt estate, it has been asserted that the housing at Milford was constructed to a high standard to reflect the family's benevolent interests and ideological position (Fitton and Wadsworth 1958, 81). As noted in Chapter Four, much of this centres on assumptions based on evidence from personal correspondence between family members, as well as written extracts from near-contemporary social commentators, specifically Farey (1811, 211) and Gaskell (1836, 294). The limitations of these documents have also been discussed in



Chapter Four; however, the situation is perhaps more acute at Milford as such commentators do not mention Milford by name (Fitton and Wadsworth 1958, 249). Consequently, it is difficult to equate their vague references to workers' housing at Milford.

Following established historical research agendas, as identified in the UNESCO inscription documentation, the smaller site of Milford has often been considered secondary to the assessment of Belper. This has created an interesting problem, as outlined by Peers (2010, 48), in that the interiors of housing at Milford are presumed to be simple duplications of examples seen at Belper. In other words, despite the earlier date of Hopping Hill, Chevin Alley and Well Lane properties (all early 1790s), scholars such as Fitton and Wadsworth (1958) and Chapman (1976) have viewed these as later imitations of standards first used at Crown Terrace and Long Row (mid-to-later 1790s). Crucially, they have never considered that the living standards seen at Belper may have their origins in earlier Milford housing types. It is only through the process of building analysis that it is apparent that the Milford properties set the benchmark in living standards.

This thesis provides the first comprehensive assessment of living standards for the occupants of the various housing forms at Milford. Evidence from surviving building fabric demonstrates that despite the diversity in architectural appearance and plan form across the settlement, the occupants had largely consistent lived experiences between housing rows. All properties were provisioned with good quality staircases, fireplaces, outhouses and garden spaces. In addition, the majority of properties had in-built storage and a separate food preparation/storage area with an integral stone thrawl. As such from the first phase of house-building in the early 1790s, these properties are well planned, deliberate and considered pieces of domestic architecture undertaken by proficient building teams. They do not indicate rushed or hurried construction and therefore fit with the model of more confident industrialists building ambitious forms of workers' housing.

The living standards seen in the first phases of housing at Milford should be considered in light of wider contemporary changes in the cotton industry. The 1790s

witnessed unprecedented expansion in the Strutts' own manufacturing interests as cotton spinning mills spread nationally. The sudden surge in the number of workers needed by both the Strutts and other manufacturers signified exceptional competition, and required different and new housing strategies to be taken. For the Strutts this was especially pertinent given that Milford was a smaller settlement with initially fewer amenities than nearby Belper or more established towns. Fundamentally, as a new and relatively isolated site of manufacture, the Strutts needed their Milford accommodation to be of sufficient quality to attract workers. This indicates that the first phase of housing at Milford was driven by economic and industrial needs rather than any patron-led moral or ideological imperatives. It is possible, given the accounts viewed by Fitton and Wadsworth (1958, 242), that this was the point at which William Strutt first started work at Milford, with Hopping Hill, Well Lane and Chevin Alley as his first input into housing design. Consequently, the investment in living standards of these houses represents a balance between a degree of economic frugality (which underpinned all Strutt ventures), the input of the patron(s) and the need to secure workers.

The limitations of designing workers' housing in order to secure a suitable workforce are illustrated in the arrangement of *Plan 10* properties at Hopping Hill. These houses reveal the potential conflict between the architectural requirements to make housing attractive to new occupants and also subsequently suitable for daily use. Specifically, in order to mitigate against the hillside slope and provide the range of household amenities associated with Strutt-built properties in the 1790s, the rear door was relocated to the stairwell. However, this seems to have worked against conventional domestic usage as the arrangement disabled immediate access between the living space of the house and the rear yard/garden areas. Thus, domestic activities for which rear access might be desirable, such as clothes washing, would have been more labour intensive in these *Plan 10* houses. This suggests that the house-plan represented a reduction in the living standards experienced by occupants.

Yet, at the same time the staircase door facilitated greater privacy of individual householders and the potential for independent access without impacting upon the communal ground floor living area. Consequently, this scenario suggests that the

doorway actually worked to give a higher than average standard of living for occupants. Essentially, the duplicity in the manner that this doorway impacted upon the living standards of occupants in *Plan 10* houses highlights the complexities in assessing ‘lived experiences’ from the building fabric. The current author suggests that this scenario ultimately indicates that where the construction of housing was a compromise between the physicalities of the land, industrial requirements and the expenditure of the patron, the actual daily needs of occupants were never fully realised.

The subsequent blocking of the staircase door and the insertion of a doorway in the rear ground floor room represents a significant reordering of the living standards within *Plan 10* houses. As the work appears to have been undertaken by the Strutt estate, it suggests that the original arrangement was considered so profoundly unworkable that it justified the expense of the modification. However, it is more difficult to determine who instigated the alteration. It is perhaps likely that this was prompted by occupants themselves and suggests that the need to have direct rear access from the living area was more important than any sense of increased independence or privacy that the staircase doorway arrangement provided. It is therefore envisaged that the patterns of daily living, cooking and cleaning would have been more streamlined following this decision. Alternatively, it is possible that this doorway arrangement was altered specifically because it facilitated independent and unobserved movement of individual household members. The action may have been undertaken by the Strutt estate in response to growing criticism from nineteenth century social commentators, such as Byng (1789, 40), that millwork was morally corrupting for young women. By removing this doorway the Strutts reinstated greater control of the household to the head of the family and could be seen, therefore, to support more conventional paternalistic domestic arrangements.

The problems inherent in evaluating living standards within workers’ housing continue when considering the development of Milford in the nineteenth century. Specifically, *Plans 13, 15, 16 and 17* are profoundly challenging. By conventional historical agendas these housing rows are both innovative and unusual in that they conform to non-standard types of construction and design. Yet, by objectively

considering the living standards within the houses themselves and the impact of this on occupants, these examples are condemnable as slum housing with limited ventilation. Crucially, these properties only had windows and doors in the front elevation, thereby preventing the important cross-draft associated with good sanitary conditions. This has been discussed by Peers (2010, 92) in his assessment of the East and West Terrace where he argues that the properties were arranged back-to-back in order to maximise the number of individual units on the available land. However, Peers (*ibid.*) concludes by arguing that the provision of heating, garden access and outhouses associated with these properties meant that the limited ventilation should not be indicative of poor quality accommodation. It is an important consideration, especially given that these properties were all provisioned with high quality fixtures such as lit stairwells. Consequently, these houses indicate the ongoing constant dialogue between fiscal and moral acceptability in decisions undertaken by the Strutt estate in their roles as industrialists and Unitarian men. Taken collectively the workers' housing at Milford throughout the 1790s, 1810s and 1820s conformed to high standards and demonstrated a commitment by the Strutts to at least consider and improve the daily lives of their occupant workforce.

#### *Model housing and social ordering*

The conclusions drawn in the above section regarding the assessment of the living standards within Milford houses means that it is difficult to consider these properties as 'model housing'. As addressed in Chapter Four, although details of the personal ideologies of members of the Strutt family have been illuminated by Fitton and Wadsworth (1958, 167), this cannot be taken as proof that the housing was constructed following these principles. Specifically, the evidence cited above suggests that the construction of these houses was determined by the complex economic and commercial factors which characterised early cotton manufacture. Crucially, therefore, the form of the housing cannot be explained solely through a benevolent agenda. Consequently, similarly to the interpretation of Belper, the current author believes that the Strutts operated with no more than a general sense of consideration for their workforce. Milford therefore represents the second of the two Strutt workers' communities which might be classed as displaying fiscal-morality. This means that

details such as fireplace surrounds, door surrounds, fenestration, garden walling and overall building design represented commercially prudent decisions which also accorded with prescribed Unitarian values.

Evidence of social ordering within the Milford settlement is difficult to ascertain. Apart from the assertion that the Bleach Houses may have accommodated overseers, types of housing at Milford have not been considered to reflect a social hierarchy of occupants. The reasons for this are twofold. Firstly, with the majority of conventional historical research focusing on the construction of the Belper settlement as told through surviving documentation, the arrangement of Milford has not been similarly considered. Secondly, the conventional association between overseers and semi-detached housing arrangements has meant that all other terraced rows in Milford have been classified as having the same status. Despite this, there are unusual elements in the Milford settlement which require further consideration.

Perhaps the most fundamental question to ask in regards to the social ordering of the Milford settlement is whether there was a purposeful hierarchical difference between housing at Sunny Hill and Hopping Hill. Although the original purchase of land on both hillsides represented an opportunistic response to its availability, it is possible that the Strutt estate chose to subsequently use the two locations to provide houses for different classifications of worker. The lack of documentation relating to the first occupants at Milford means that it is a difficult question to answer. However, it is fundamental in determining whether housing which had a more public appearance, such as those on Hopping Hill, conferred any social status on the occupants residing within. Additionally, it is also important to consider whether the number of units within a type of property were indicative of social status. Specifically, given the smaller number of Chevin Alley and Well Lane properties it is possible that their form and construction also represented a different classification of worker. Finally, it is also important to establish the origins of the conventional interpretation for the status of the Bleach Houses.

### *Resistance and worker zonation*

The way in which workers might subvert the strict code of conduct used by the Strutts within the mills has been discussed at length in Chapter Four, where it was suggested that the same intensity of surveillance was largely absent from the workers' settlement. Similarly at Milford, there are no obvious architectural clues to indicate that occupants were intensively watched beyond the level of casual observation, as discussed in previous sections. It is evident therefore, that the use of wide roads, straight rows and peer/public observation appears to have operated as a suitable deterrent to acts of resistance. Noticeably, the census data from 1841 reveals that tenants of these properties were a mix of mill workers, maintenance personnel, textile outworkers and agricultural labourers. This suggests that at Milford the pattern of employment closely bound the occupants to their housing more so than seen at Belper. Consequently, it was likely that this reflected a stronger feeling of Strutt-omniscience within the community and therefore worked to create a more loyal and obedient body of occupants.

As noted above in the discussion of social ordering at Milford, without documentation it is impossible to determine whether different rows may have housed different classifications of workers. Consequently, the practice of worker zonation at Milford remains hypothetical. This outcome is similar to the discussion of the Belper settlement and highlights the limits in analysis of surviving building fabric without corresponding document accounts and rental information.

### *Pomp and ceremony*

This chapter has already determined that the location of workers' housing at Milford reflected the availability of land at the point at which Jedediah Strutt embarked on his development. However, it has also been established that the subsequent arrangement of the houses, especially those along Hopping Hill and Chevin Alley, offered the opportunity for the Strutts to openly display their success as industrialists. Consequently the arrangement at Milford represents the first occasion that the Strutts used their workers' housing to evoke a sense of pageantry in a public manner. When seen alongside the slightly later developments at Belper (as described in Chapter

Four), it is apparent that once the Strutts became more financially confident in the early 1790s, the image of their workers' communities became a more crucial part of their manufacturing ventures.

A fundamental part of this was the use of conventional architectural cues which would have been familiar to contemporary society. In particular, by setting back Hopping Hill and Chevin Alley from the street frontage using a stone walled-garden, the Strutts were inviting parallels with local traditional forms of small rural dwellings. This continued with the form of the Dukes Buildings and the East and West Terrace in the early nineteenth century. As asserted in Chapter Four, the selective form of housing façades suggests that the Strutts were looking to convey the message that their houses were not a new alien concept but part of a traditional pattern of land use correlating to the rural idyll. Fundamentally, the type of arrangements used by the Strutts indicates that they were using architectural style to project several messages to different audiences. In this respect these houses worked to: appeal to new workers; be considered respectable and acceptable to existing local inhabitants; and portray the Strutts as profitable, successful and considerate patrons.

The pomp and ceremonial use of workers' housing at Milford worked differently to Belper. In particular, there is no substantiating evidence to suggest that the houses were used as part of a processional route through the Milford settlement. Specifically the *Derby Mercury* seems to indicate that whilst the Strutt estate held events throughout the early nineteenth century at both sites, members of the Strutt family only attended in person at Belper (cited in Fitton and Wadsworth 1958, 258-260). Thus the need to process through the Milford settlement never materialised. As a result, it indicates that whilst the two sites formed part of the same commercial and manufacturing business, the settlements and communities which were created operated with very different socio-cultural reference points and should be considered independently from each other.

## **Conclusion**

Chapter Five has examined workers' housing at the site of the third case-study, Milford. This chapter has explored the variety of housing forms and styles constructed

by the Strutt family as they established their second industrial settlement in the Derwent Valley. Through a detailed analysis of the exterior and interior of properties, this study has revealed the dichotomy between the apparent variation in the physical forms of the properties and the relative uniformity in living standards these different types created. This has raised interesting questions about the factors contributing to the design of Strutt-built properties and has highlighted a number of significant themes. This chapter has made the argument that the housing at Milford coincided with a period of greater confidence in the cotton industry. Reacting to this, the housing established at Milford reveals a high level of expenditure and innovation in the exterior and interior arrangements. Therefore, this case-study continues to demonstrate that workers' housing in the Derwent Valley was built according to the specific social-industrial-economic circumstances at the time of its construction. At Milford this is represented as the interaction between the needs of the industry, patronal influence and the expectations of occupants.

The design and construction of housing at Milford marked a new direction in the approach taken to workers' accommodation in the Derwent Valley. The construction of the first properties along Hopping Hill, Chevin Alley and Well Lane in the 1790s, revealed a series of innovations which altered the form of domestic space in unprecedented ways. These changes have been associated with the introduction of William Strutt into the family business. The trend for innovative housing types continued in the 1810s and 1820s with the arrangements at the Dukes Buildings and East and West Terrace. Yet, whilst innovations to Hopping Hill properties appear to have been motivated by the requirement to overcome defined typographical issues, those at Chevin Alley and Well Lane, Sunny Hill, appear to have been designed specifically to improve the daily lived experiences of occupants. However, the current author argues that these developments should not be read as evidence for paternalism by the Strutt family. Rather, they reflect a renegotiation of financial investment in workers' housing, the standards expected by occupants and the skills of the patrons as they became more experienced industrialists at the close of the eighteenth century.

Chapter Five has yielded new insights and offered new interpretations on the subject of the lived experiences of occupants within Strutt-built houses. Within the variation



of housing forms, the architectural solutions reveal a generally consistent standard of living. This focuses on three areas: adequate sanitation; the provision of food storage/preparation areas which were separate to the principal living space; and, the partitioning of first floor bedroom spaces with independent access from the stairwell. These trends are understood to reflect the increasing privacy and specialisation of domestic space; however they also follow the pattern of patronal investment linked to ensuring the health of their workforce. Thus the lived experiences of occupants are intrinsically linked to their role as a productive workforce. The current author therefore argues that the interior arrangements of housing at Milford reflect the actions of the Strutts as astute industrialists. Consequently the investment in living standards in these houses represents a balance between a degree of economic frugality (which underpinned all Strutt ventures), the input of the patron(s) and the need to secure workers. It is for this reason that these provisions, coupled with the stairwell and cellar windows of Chevin Alley properties, are subsequently adopted in the Belper housing of the later 1790s.

## Chapter Six

### Darley Abbey

Chapter Six forms the last case-study within this thesis and focuses on workers' housing constructed at Darley Abbey, five miles south of Milford and two miles north of Derby City (figure 6.1). This site was the last cotton workers' settlement to be constructed in the Derwent Valley and was developed by the Evans family (Thomas, Edmund, Walter and William) who were career businessmen (with significant banking and metalworking interests) rather than individuals with substantial experience in textile manufacture. Chapter Six therefore represents a case-study in which a cotton mill complex was established through a commercial sale of rights to use Arkwright's spinning technology. This chapter continues to explore the core themes outlined in Chapter One and aims to examine changes in the form of workers' housing as the cotton industry expanded in the late-eighteenth century. Accordingly, Chapter Six highlights the important contribution that a systematic analysis of a network of sites can make in understanding the impact of early industrial activity in the formation of workers' settlements.

The Boar's Head Cotton Mill at Darley Abbey was fully operational by 1782 and represented a new type of business venture for the Evans family (Fitton 1989, 224) (figure 6.2). The siting of the mill complex is comparable to the other three case-studies considered within this thesis, with available land, a consistent water supply and the reuse of existing buildings from older industries, all key influences (Lindsay 1960, 278). However, Darley Abbey has received comparatively little scholarly attention. This is due to the assertions made by Pilkington (1789, 172), Lindsay (1960, 279), Peters (1974, 33) and the UNESCO inscription documentation. These sources have argued that as the Evans received considerable guidance from Arkwright and the Strutts, Darley Abbey was not an innovative cotton workers' settlement but merely an imitation of Cromford, Belper and Milford. Thus Darley Abbey has been considered as a different class of industrial settlement (Peters *ibid.*). This has encouraged the interpretation that the site was a reflection of the intentions of Arkwright and the Strutts rather than the Evans, and that they were less influential in

their position as millowners. This situation further reinforces the fact that only patronal innovation and philanthropy have been considered a motivating factor in prioritising investigation within the Derwent Valley.

The workers' settlement at Darley Abbey is situated approximately 400m to the west of the mill complex, on the opposite side of the Derwent River, and forms three distinct areas of housing. This reflects differences in previous landownership arrangements and the subsequent pattern of purchases made by the Evans as they began to develop Darley Abbey. Workers' housing forms are diverse and comprise terraces, back-to-backs and 'cluster' arrangements, interspersed with other community amenities such as schools and shops. A proportion of these houses are listed with Grade II status and all date to the period between 1790 and 1826. To the north, 0.5km from the original extent of the workers' community, a church was established in 1818. In the twentieth century, Darley Abbey steadily expanded and became a suburb of Derby, meaning that the original settlement became the core of a much larger community. Despite this, the character of the industrial site survives and gives a unique insight into the planning and construction of workers' housing in the late eighteenth and early nineteenth centuries.

#### *The Evans family and early The Boar's Head Cotton Mills*

Although less extensively researched than Arkwright or the Strutts, the documented historiography of the Evans family has, nevertheless, substantially influenced the direction of research into the cotton industry at Darley Abbey. Surviving personal correspondence and business accounts of the Evans has encouraged a scholarly interest in the family's activities as millowners operating within the Derwent Valley at the turn of the nineteenth century. Much of this research seeks to substantiate claims about the relationship between the Evans, Arkwrights and Strutts (for example Lindsay 1960 and Peters 1974). Based on their close reading of the documentary sources, they argue that the Evans were only successful as cotton manufacturers due to their intermarriages with the Strutt family (marriages of William and Walter Evans to Elizabeth Strutt as well as the marriage of Barbara Evans to William Strutt). This

interpretation has set the agenda for subsequent research and informs the official UNESCO documentation.

The first reference to the construction of the Boar's Head Cotton Mill at Darley Abbey comes from a Sun Insurance Company policy taken out by Arkwright and members of the Evans family (Thomas, Edmund and William) for £800 in 1782 (Fitton 1989, 224). Despite this, five years later, an extract from the Derby Mercury suggests that the Evans were still in the process of buying components and equipment (Fitton 1989, 236). This indicates that the early growth of the mill complex was piecemeal. It also suggests that whilst Arkwright was involved in the establishment of the mill construction, subsequent development of the site was by the Evans. The first mill was destroyed by fire in 1788 and was replaced soon after by a similar building, Long Mill, and a second mill, West Mill, on the site (Peters 1974, 39,46 & 53). By 1819, the West Mill had been rebuilt and the East Mill added (Peters *ibid.*). Both these later mills demonstrate elements of fireproofing similar to those recorded in the Strutts' mills at Belper and Milford (Peters 1974, 48). However, despite the extent of surviving building fabric, the mill buildings at Darley Abbey have not been extensively analysed and have received very little academic attention. This is a consequence of the hypotheses discussed above; that the Evans were less innovative and the site of Darley Abbey itself was both chronologically and technologically imitative of Cromford and Belper mills. Sadly, this means that the industrial archaeology of the site, including the date, phasing and form of the mill complex, has still not been studied or established.

### ***The creation of a workers' community***

The formation of a workers' community at Darley Abbey closely followed the model established at Cromford. Upon the purchase of the site, it is probable that the initial workforce was drawn from existing workers at the nearby flint, paper, corn and china mills (Lindsay 1960, 295). Consequently, without great levels of patronal input or expenditure, there was already a small community housed within the immediate vicinity of The Boar's Head mill. However, it is apparent from a series of adverts

placed in the Derby Mercury that by 1787 the Evans also had to advertise for labour from outside the local area.

*“Darley Abbey cotton mill. WANTED. Families Particularly women and children to work at Said Mill. They may be provided with comfortable houses and every convenience at Darley or Allestry: particularly a milking cow to each family. It is a very good neighbourhood for the men getting work who are not employed in the manufactory”.* (Derby Mercury 1787, cited in Peters 1974, 41)

Peters (1974, 69 & 74) has argued that this advert should be taken as evidence for the philanthropic nature of the Evans and that they acted quickly upon the completion of the first mill building to provide quality housing for their workforce. However, care should be exercised in imposing such interpretations on the evidence. Lindsay’s (1960, 297) analysis of the Evans correspondence reveals a family concerned to exert their authority over their workers, and the “comfortable” houses referred to in the advertisement were not, in fact, purpose-built workers’ housing, since the first Evans-built housing was only constructed in the 1790s (UNESCO inscription documentation). The advertisement should therefore be understood in the context of the arguments advanced in earlier chapters about the ways in which early industrialists sought to attract new workers to their communities.

#### *The first housing of the 1790s*

The time lag between the construction of the first mill building at Darley Abbey and the initial phase of purpose-built workers’ housing is comparable to Cromford, Belper and Milford. Although this might be seen to support the hypothesis that the Evans were following Arkwright and Strutt’s model of industrial development, the phasing of the workers’ housing is more difficult to determine, as surviving accounts from the Evans’ estate are limited to a few specific building projects. This is compounded by existing scholars’ use of both published and unpublished sources, and by the lack of

systematic citation within their accounts; a problem which has been highlighted throughout this thesis.

The first conclusive reference to purpose-built workers' housing at Darley Abbey comes from the earliest surviving buildings accounts for the Evans estate, which date to 1795 (DRO D5231/1/1). These documents include several accounts for the purchase of large quantities of bricks, fire-grates, ovens, flooring and glazing, as well as maintenance work undertaken on housing at The Flat Square and Darley Street (figure 6.3 & 6.4). The precise date of construction is difficult to establish. The UNESCO inscription notes that they are "believed to date from c.1790", but although English Heritage and Chapman (1976, 124) assert a date for The Flat Square of 1792, the source on which this assertion is based cannot be found by Matlock Records Office. Of more interest to this thesis, but ignored by previous scholars, is the extreme narrowness of the three-storey terrace design used by the Evans in the 1790s. This appears to have been a product of limited available land and financial restraint.

Of all the houses recorded in the building accounts, only the construction of Mile Ash Row can be conclusively identified (figure 6.5). In March 1795 12 houses were built at a cost of £353.3.2¼ (DRO D5231/1/1). Subsequent entries reveal a pattern and pace of building work comparable with Long Row, Belper and Hopping Hill, Milford. The same account book also references the construction of "New Houses in Brick Yard" in 1797, which appears to correspond with the construction of Brick Row (figure 6.6); a terrace to the north of which the 1880s Ordnance Survey map shows a small brickworks, and which is consistent in style to the late-eighteenth century examples of Mile Ash Row and Field Row, Belper (see figure 4.4). This is important to note, since the current UNESCO inscription (after Peters 1974, 81) erroneously dates the terrace to 1826, the date of the adjacent school building, whilst acknowledging that it is "stylistically earlier"!

Thomas (2012) has identified two phases of construction within Brick Row between 1797 and 1800: the first of which he argues consisted of "five houses and a school-room" and the second of "eight houses and a school-room". The schoolrooms are argued to have been constructed on the second floor of the houses, accessed via a

“dedicated entrance in the centre of the terrace” (at No. 9 Brick Row). However, both the documentary and archaeological evidence of the terrace raises questions about this very unusual arrangement. Although the surviving building ledgers of Darley Abbey (DRO D5231/1/1) record “five houses and a school-room ... and eight houses and a school-room”, the location of these structures is not specified and it seems highly unlikely that two schoolrooms would be constructed at this date within a single industrial terrace. It is far more likely that the second schoolroom was located elsewhere in Derby, and it may well be that recorded as:

*“1796- Day school at Derby”* (DRO D5231/1/1).

Which was followed by an entry for further buildings:

*“New houses at the End of School Room 1798”* (DRO D5231/1/1).

The archaeological evidence of Brick Row supports this alternative hypothesis. Visual and structural analysis by Chapman (1976) and this author indicates that a proportion of the attic spaces are off-set against the ground and first floor rooms, with some houses simply having a larger upper floor than others.

Similar dating problems are apparent in UNESCO’s unreferenced assertion that The Four Houses at Darley Abbey were constructed in 1792 (figure 6.7). The date is significant because these houses are argued to be the earliest known example of the ‘cluster’ house form, predating those at Belper by approximately 20 years. The use of the cluster format is at odds with the more conventional forms of textile workers’ housing seen at The Flat Square, West Row, Darley Street and Brick Row. It is also at odds with the dominant narratives of the Evans and Darley Abbey being emulative of sites like Belper, and this is clearly a priority for future research. The numerous problems encountered in trying to establish the phasing and development of early workers’ housing at Darley Abbey reflect both problems in survival of the evidence, and a resistance to new research which might challenge deeply-embedded understandings of the site. The UNESCO inscription documentation concludes that

“no obvious pattern is discernible in its [Darley Abbey’s] growth”. Nevertheless, it is evident that the first period of mill expansion and house-building was one of substantial activity for the Evans at Darley Abbey. The construction of housing at The Flat Square, Darley Street, Brick Row and Mile Ash Lane clearly reflect a pragmatic and piecemeal acquisition of land for building, as it became available, rather than a single strategic campaign. As such, the early development of Darley Abbey parallels the account of the growth, fluctuation and phasing of other Derwent Valley cotton workers’ settlements outlined in this thesis.

#### *Expansion in housing in the early 1800s*

Throughout the early-1800s, the continued expansion of The Boar’s Head Cotton Mill resulted in a second phase of house-building and the construction of a series of rows along Poplar Row, The Hill Square and Lower New Road (figures 6.8, 6.9 & 6.10). These properties were constructed after the Evans invested in a new link road which connected the southern end of Darley Abbey to the Derby turnpike through Mile Ash Lane, to the New Road and Darley Street (figure 6.11). This second phase of house-building represented an expansion of the community along the southern limit of the existing settlement. These houses marked the introduction of back-to-back properties at Darley Abbey with the construction of three rows at The Hill Square. Whilst different in form, these properties still shared stylistic parallels with the first phase of workers’ housing. This adds weight to the existence of a model of house-building seen throughout the Derwent Valley where the patron makes high level decisions around property form, but the work is undertaken by local builders according to their skills and experience.

#### *Expansion in housing in the 1820s*

Peters (1974, 78) has referred to the development of Darley Abbey in the 1820s as a “period of rapid expansion” which witnessed a vast augmentation of the mill complex (1818-1821), the construction of St Mathew’s Church (1819) and the completion of Darley Abbey School (1826). Lavender Row and Upper New Road, also constructed in the 1820s, mark the third phase of housing at Darley Abbey and the introduction of a new architectural style with flourishes such as keystone detailing and more



sweeping arch doorways (figures 4.12 & 4.13). These houses also represent the two rows which were built after the death of Thomas Evans in 1814.

Once again, a lack of surviving documentation means that the precise dating of both rows is uncertain. For example, Lavender Row is dated by English Heritage to the 1790s but by UNESCO to the 1820s. Visual and comparative analysis reveals that the treatment of the window lintels and door surrounds is consistent with local building traditions associated with the decade between the later 1810s-1820s. Similarly, the minor detailing of features such as architraves in the Upper New Road cluster houses mirrors that of the façade of the school building and thus suggests a date of c. 1826.

The above overview describes the development of workers' housing at Darley Abbey between c.1790 and c.1820. Peters (1974, 39) and Chapman (1976, 123) have argued that Darley Abbey represents the most complete example of a workers' settlement according to the original intentions of the builders within the Derwent Valley. Chapman (*ibid*) also asserts that Darley Abbey was constructed with greater finesse than Belper and Cromford, indicating that the Evans had "more interest in style and planning". However, the preceding section of this chapter has demonstrated that a preoccupation with its millowners, as well as a lack of definitive dating, raises important questions about existing levels of understanding surrounding Darley Abbey. With the exception of the more unusual terrace forms, such as Brick Row, there has been very little sustained in-depth investigation of the buildings themselves. Darley Abbey therefore remains on the margins of much of the published literature regarding the classification of industrial accommodation and represents the least well-understood site in this thesis. This highlights the need for systematic visual and architectural analysis of the architectural styles and plan-forms of the workers houses of Darley Abbey.

#### *Archaeological assessment of the surviving workers' housing*

##### *Exterior descriptions*

Existing attempts to categorise Darley Abbey's houses have attributed them rather generally to the three basic typological forms discussed in Chapter One of this thesis:

row, back-to-back and cluster housing (see for example the absence of more detailed typological discussion in Chapman 1976, 123-124 in spite of his comments above). The typological assessment offered in this thesis forms a reclassification of workers' housing at Darley Abbey and sets out to address some of the criticisms made above. Using a detailed archaeological survey of the building fabric (Appendix 1), this typological review is intended to draw attention to genuine stylistic development and recurring patterns within the housing exteriors. As in previous chapters, it is not intended to be used independently of a discussion of the interior arrangement and so clear links to the plan-form of properties have been made where appropriate. This means that research can move beyond the façades and begin to investigate the workers' housing as a significant component within the industrial settlement of Darley Abbey. The remaining sections of this chapter are therefore dedicated to a detailed archaeological investigation of all workers' housing at Darley Abbey. The author suggests that the form of housing at Darley Abbey must be understood as a product of the local context, especially the proximity of Derby itself, the needs of industry, the input of the Evans, and the requirements of occupants. It should be noted that this classification is a continuation of the form used at Milford (Chapter Five) and therefore starts with *Group P*. This is to enable inter-site comparisons of housing forms without confusion or duplication. Clear linkages between housing groups have been established in Appendix 1.

#### *Group P: Aligned elevation*

Throughout the 1790s, early 1800s and 1820s, three-storey brick-built *Group P* houses are the most frequent elevation type used at Darley Abbey and are present at: The Flat Square, West Row, Mile Ash Lane, Brick Row, Poplar Row, Lower New Row and Lavender Row (see figures 6.3, 6.5, 6.6, 6.8, 6.10 and 6.12). The form comprises an off-centre doorway and single window to the ground, first and second floors. These properties are similar to the broadly contemporary *Group H* housing at Field Row, Belper (see figure 4.4). The typology presented in this thesis proposes twelve subcategories to *Group P* properties which reflect differences in the style, arrangement and scale of window openings and doorways. *Group P* properties were used in both row and cluster plan form arrangements.

### *Group P (a)*

Subcategory *Group P (a)* appears at The Flat Square, West Row, Mile Ash Lane and Darley Street and the form is understood to have been used for approximately four years between c.1792-1796 (see figures 6.3-6.5). *Group P (a)* elevations are characterised by an off-centre doorway, surmounted by a segmental brick arch header, sash windows with segmental arched headers to the ground and first floors and an upper floor casement window situated at eaves height without a formal lintel. The glazing of the Mile Ash Lane houses is recorded in building accounts which note it was undertaken in piecemeal amounts from 24<sup>th</sup> June 1795 onwards (D D5231/1/1).

*Group P (a)* elevations open directly onto the street frontage, although the effect of this is reduced in The Flat Square examples, due to the arrangement of a communal central garden and the formation of an open courtyard plan. The *Group P (a)* form was used both with a continuous roofline (The Flat Square and West Row) as well as in stepped formation (Mile Ash Lane), demonstrating its versatility as an industrial housing design. *Group P (a)* properties were used with a *Plan 18* arrangement (figure 6.14).

### *Group P (b)*

Subcategory *Group P (b)* appears exclusively at Nos. 13-15 Brick Row and is possibly the earliest arrangement used in this terrace (figure 6.15). The arrangement comprises an off-centre doorway surmounted by a segmental brick arch header, sash windows with segmental arched headers to the ground and first floor and a smaller casement window with a segmental arched header to the upper floor. *Group P (b)* elevations open directly onto the street frontage. However, as some homeowners have modified the pavement outside their properties it is difficult to determine whether *Group P (b)* properties once had a more formal forecourt arrangement, perhaps similar to *Group I (a)* at Crown Terrace, Belper. *Group P (b)* properties were used with a *Plan 18* arrangement (see figure 6.14).

### *Group P (c)*

No.10 (formerly two units) and No.12 Brick Row conform to subcategory *Group P (c)* and comprise an off-centre doorway and sash windows to the ground and first floor all with segmental arched headers (figure 6.16). The upper floor window is an iron-framed casement situated at eaves height without a formal lintel. Within the *Group P (c)* arrangement the upper floor window is off-set within the elevation. *Group P (c)* properties were used with a *Plan 18* arrangement (see figure 6.14).

#### *Group P (d)*

No. 11 Brick Row conforms to subcategory *Group P (d)* and is similar to *Group P (c)* in that the arrangement comprises an off-centre doorway and sash windows to the ground and first floor all with segmental arched headers (figure 6.17). However, there are two upper floor windows within *Group P (d)*; one is off-set in the elevation and the other is aligned above the doorway. These upper windows are casement and situated at eaves height without formal lintels. Given that there is no obvious building-break between *Groups P (b), P (c)* and *P (d)*, and all window openings look to be the original dimensions, if not the original frames, it is likely that these three subcategories represent a single building phase of work at Brick Row. *Group P (d)* properties were used with a *Plan 18* arrangement (see figure 6.14).

#### *Group P (e)*

No.9 Brick Row conforms to subcategory *Group P (e)* and is a narrow elevation comprising: a doorway with three-pane overlight, a small sash window with a segmental arched header to the first floor and a casement window situated at eaves height to the second floor (figure 6.18). It is evident from a building-break between Nos. 9 and 10 Brick Row, that *Group P (e)* represents a second phase of work at Brick Row. *Group P (e)* properties were used with a *Plan 18* arrangement (see figure 6.14).

#### *Group P (f)*

No. 8 Brick Row conforms to subcategory *Group P (f)* and comprises an off-centre doorway with three-pane overlight, sash windows with segmental arched headers to the ground and first floors, and two casement windows situated at eaves height to the

second floor (see figure 6.18). Of the two second floor windows, one is off-set in the elevation and the other is aligned above the ground and first floor windows. *Group P (f)* properties were used with a *Plan 18* arrangement (see figure 6.14).

#### *Group P (g)*

No. 7 Brick Row is comparable to *Group P (d)* in regards to the positioning of the windows; however, the doorway has a three-pane overlight and is therefore stylistically similar to *Groups P (e)* and *P (f)*. *Group P (g)* properties were used with a *Plan 18* arrangement (see figure 6.14).

#### *Group P (h)*

No. 6 Brick Row comprises an off-centre doorway and casement windows to the ground and first floors, all with segmental arched headers. To the second floor there is a casement window situated at eaves height without a formal lintel. These windows are all aligned. *Group P (h)* properties were used with a *Plan 18* arrangement (see figure 6.14).

#### *Group P (i)*

The final subcategory of *Group P* used in the construction of Brick Row is *Group P (i)* and is present at Nos. 3 (formerly two units) to 5. Stylistically *Group P (i)* is similar to *Group P (b)*; however, the proportions of the upper floor window are different, being larger in this subcategory. Noticeably, the lack of an obvious phasing break between *Groups P (e)-(i)* indicates that these subcategories were part of a second phase of works at Brick Row in the later 1790s. *Group P (i)* properties were used with a *Plan 18* arrangement (see figure 6.14).

#### *Group P (j)*

Subcategory *Group P (j)* is found exclusively at Poplar Row and is understood to date from the early 1800s. *Group P (j)* elevations are characterised by an off-centre doorway surmounted by a segmental brick arch header and large casement windows to the ground, first and second floors, all with segmental arched headers. *Group P (j)*

properties are arranged behind a small paved forecourt area and were used with a *Plan 19* arrangement (figure 6.19).

#### *Group P (k)*

Subcategory *Group P (k)* properties appear at Lower New Road and comprise an off-centre doorway with a single window to the ground, first and second floors, all with segmental arched headers (see figure 6.10). These windows are all aligned. Although stylistically similar to *Group P (b)* properties with a smaller second floor window, the presence of a projecting plain stone sill suggests that *Group P (k)* were of a later phase of construction and probably date to the early-nineteenth century. In contrast to other forms of housing at Darley Abbey, *Group P (k)* are situated behind a stepped-up small forecourt area.

As the *Group P (k)* elevation was used with a cluster plan-form, all properties have been extended to the side with a two-storey extension in the early to mid-nineteenth century. Windows in the extension have plain stone lintels and sills which project forward from the elevation. *Group P (k)* elevations appear to be used with a *Plan 23* arrangement, although on site access was not available during the course of this thesis (figure 6.20).

#### *Group P (l)*

Subcategory *Group P (l)* is found exclusively at Lavender Row and comprises an off-centre doorway with a single window to the ground, first and second floors all surmounted by a projecting key-stone lintel and plain stone sill (see figure 6.12). *Group P (l)* properties open directly onto the street frontage; however, given the hillside slope and stepped character of the row several properties have a small flight of stone steps leading to the front door. Similarly to Brick Row homeowners have modified the pavement outside their properties. *Group P (l)* properties were used with a *Plan 19* arrangement (see figure 6.19).

#### *Group Q*

The use of the *Group Q* elevation is tentatively dated to 1792 and is found exclusively at The Four Houses, discussed above. The design of this elevation is distinctive to Darley Abbey and adheres to a cluster rather than row plan format (see figure 6.7). However, all examples of this type of elevation have been heavily modified, and consequently the original arrangement is difficult to determine. The three-storey elevation comprises an off-centre doorway and single ground and first floor windows, all with segmental arched headers. *Group Q* shares a degree of stylistic similarity to contemporary *Group P* arrangements, in the style of window design, but is different from the often cited comparison, *Group K* at Belper. Specifically *Group Q* properties open directly onto the street frontage and also lack the garden space, pigsties and outhouses associated with the *Group K* arrangement. *Group Q* properties were used with a *Plan 22* arrangement.

#### *Group R*

The two-storey *Group R* elevation appears from the early-nineteenth century onwards at The Hill Square and No.10 Darley Street (formerly two units) (see figures 6.3 and 6.4). *Group R* comprises an off-centre doorway with a single window to the ground floor, both of which are surmounted by segmental arched headers. The first floor window is situated at eaves height and without a formal lintel. *Group R* elevations open directly onto the street frontage. However, over time, some homeowners have modified the pavement outside their properties to create the illusion of a more formal forecourt area. *Group R* properties were used with *Plan 20* and *21* arrangements (figure 6.21).

#### *Group S*

The introduction of the *Group S* elevation form is likely to have occurred in the 1820s and is only evident in two cluster arrangements on Upper New Road (see figure 6.13). The two-storey double-fronted *Group S* elevation is stylistically distinctive from all other forms of housing at Darley Abbey and comprises a symmetrical facade with a central doorway, sash windows either side on the ground and first floors and a blind window above the doorway. All windows have segmental arched headers and projecting plain stone sills. The doorway sits within a shallow, arched recess which

may have been influenced by the facade of Darley Abbey School (1826). The symmetry of the original design is broken by single-pitch side extensions. It is notable that the four examples facing onto Upper New Road have been whitewashed, whereas the rear four examples retain the original brickwork facade. *Group S* properties open directly onto the street frontage and were used with a *Plan 24* arrangement.

#### *Discussion of exterior descriptions*

According to differences visible in the exterior form, the above typological assessment appears to identify four distinct categories of purpose-built workers' housing constructed at Darley Abbey. Whilst these categories reveal a diverse range of exterior elevations they also demonstrate fundamental stylistic principles which govern the arrangements. The subject of exterior style of Darley Abbey is entirely absent from leading research by Fitton and Wadsworth (1958), Lindsay (1960), Peters (1974) and Chapman (1976), all of whom investigate the significance of cotton manufacture in the Derwent Valley. This has led to the highly-selective use of workers' housing at Darley Abbey to support particular hypotheses about the character and business practices of the Evans family. As noted above, the Evans were not experienced textile manufacturers, but rather businessmen who purchased Arkwright's technology. Existing scholars have therefore suggested that they would have had little ability or interest in altering the settlement model well-established by Arkwright and Strutt (Peters 1974, 90), especially after the Evans' married into the Strutt family (Lindsay 1960, 279). Crucially then, the design of the Darley Abbey workers houses has been argued to be merely an example of the diffusion and emulation of other Derwent Valley housing, at Cromford, Belper and Milford (e.g. Farmer 2014, pers. comm.).

The visual and typological analysis presented above contradicts this interpretation. The diversity in the design of external elevations rather reflects the same mix of factors identified in other Derwent Valley sites, including local and regional pre-industrial building traditions, proximity to established textile centres, as well as the input of the Evans as patrons. The stylistic origins for the types of housing used at Darley Abbey have never been adequately studied. Specifically, it is evident that there



are architectural forms, such as the use of segmental arched window headers (1790s and 1800s), which are not found in contemporary or earlier housing constructed by either the Arkwrights or the Strutts at Cromford, Belper and Milford. The use of segmental arched headers was part of a local pre-cotton building style used within the domestic architecture of the South Derbyshire and Trent Valley areas, and seen at Repton and Hucknall. This reinforces the hypothesis advanced throughout this thesis that the patrons at each site instructed local building teams to carry out the work according to their skills-set and experience. Indeed, the stylistic variations between Darley Abbey and its nearest neighbour, Milford, demonstrate just how localised building traditions were in late-eighteenth century Derbyshire.

Notwithstanding scholarly consensus about the Evans' lack of innovation in building design, the UNESCO inscription documentation and researchers such as Lindsay (1960, 278-279) and Peters (1974, 74) have continued to maintain that the architectural choices made at Darley Abbey reflected the social aspirations of the Evans family and the level of control they exercised over their workers. The interpretation that Darley Abbey was designed as a reflection of the social aspirations of the Evans family is longstanding. Peters (1974, 73), Chapman (1976, 123), Cooper (1991, 105) and Farmer (pers. comm. 2013) suggest that features such as the use of courtyards at The Flat Square and The Hill Square; the remodelling of No.16 Brick Row to resemble a gatehouse of a country estate; and the stylised form of the cluster houses on Upper New Road, reflect the desire of the Evans to promote themselves as local gentry. These interpretations can themselves be seen to emulate the interpretation of Arkwright's architectural aspirations to use Cromford to establish himself as the 'Lord of the Manor' (see Chapter Three). However, as argued above, such interpretations are over-simplistic because they focus almost exclusively on issues of aesthetics, rather than the lived experience of workers themselves.

Surviving documentary sources provide little evidence that the Evans were looking to assert themselves in any other capacity than as millowners/industrialists (Fitton and Wadsworth (1958; Lindsay 1960). The presence of major landowners, such as the Holden family, at Darley Abbey and the close proximity of Derby City itself prevented the Evans from aspiring to dominate the local social hierarchy. The division

of property interests within and between Thomas, Edmund and William Evans, and the sheer variation in housing types makes it difficult to discern any clear pattern of intention in the use of particular forms of socially- or culturally-aspirational architectural designs. This is particularly evident in the complexity of building sequences in surviving houses at Darley Abbey. For example, the courtyard form as seen at The Flat Square and The Hill Square was constructed in several different phases, with no clear evidence of a single overarching design. The first phase of The Flat Square appears as two rows of housing constructed in the early 1790s, with an additional wing, West Row, added later. The construction of West Row is interesting as the main façade faces outward from the courtyard. Thus this later terrace appears to have been built according to a different master-plan. As a result, any grand stylistic gesture intended through the use of a courtyard form was compromised by the appearance of the rear elevation of West Row properties. Brick Row and The Hill Square also appear to have been constructed as a series of sequential phases. This has been interpreted as evidence of the Evans' conservative approach, in which smaller projects were undertaken as a manufacturing strategy to prevent millowners from financial burden. Yet this pattern mirrors the pace of construction also recorded at Cromford, Belper and Milford and therefore appears consistent with the model of housing construction emerging across the Derwent Valley developed in this thesis.

The 1820s marked the introduction of new styles in the domestic architecture of Darley Abbey, with the use of classical details in the façades of both Lavender Row and Upper New Road. The construction of these terraces coincided with a period of major change in the cotton industry, as Manchester became a rival manufacturing centre (Menuge 1993, 58). At Darley Abbey the Evans reinvested heavily in The Boar's Head Mill and started to manufacture more specialised types of yarn. The use of classical details on the visible façades of these later workers' housing seems a much more convincing example of the Evans' use of architectural detailing to reinforce their personal status as cotton manufacturers, and the significance of Darley Abbey as a centre of industrial production at this time. This has resonances with the Strutts' use of housing along Hopping Hill, Milford (discussed in Chapter Five).

An alternative hypothesis for the use of classical detailing at Darley Abbey is that it was used to make a statement regarding the social status of the occupants, rather than that of the patron, as at North Street, Cromford. The use of the key-stone window lintels at Lavender Row has strong parallels with established housing forms associated with skilled workers of the textile industries in the Trent Valley and Nottingham/Mansfield corridor. Its presence at Darley Abbey appears to reflect a situation in which the continued expansion of the cotton industry in the East Midlands, and the rival development of Manchester, brought increasing pressure on the Evans to acquire and maintain a stable workforce. Given the close proximity of Derby and the increasing migration and urbanisation during the first decades of the nineteenth century, Lindsay (1960, 295-296) has argued that the Evans felt the effects of competition more acutely than the rurally-located businesses of the Arkwrights and the Strutts. The introduction of classical embellishments suggests that the Evans were deliberately using architectural forms associated with the textile industry in order to entice skilled labourers to Darley Abbey. Of course, these two interpretations are not mutually exclusive and it may well have been that the use of classical detailing served to create a mutually-powerful public statement about the success of the Evans and the status of their workers. In conclusion, it can be argued that rather than being distinctive or different, the Evans' were in a very similar position as percentage landowners within Darley Abbey as Arkwright and the Strutts, and the design and appearance of their workers' housing appears to reflect the same combination of pragmatic and piecemeal land acquisition, appropriation and adaptation of local building traditions, within which both patronal aspirations and occupant expectations, were accommodated. This therefore raises important questions about whether the lived experiences of Darley Abbey inhabitants also paralleled those of other Derwent workers.

### **Interior Descriptions of workers' housing in Darley Abbey**

To date, interest in the interior form of workers' housing at Darley Abbey has been extremely limited. Based on the assumption that the Evans were influenced by the Strutts and shared a common philanthropic intention, it has been assumed that the interior arrangements of the houses at Darley Abbey were therefore the same as

Belper. This chapter seeks to use the methodology piloted earlier in the thesis, of detailed archaeological survey of building fabric to consider the daily lives of workers. The following section of this chapter therefore offers a detailed assessment of the interiors of workers' housing at Darley Abbey and sets out to examine the daily lived experiences of its occupants in order to determine occupation patterns within the housing interiors. Where possible, this appraisal also continues to consider the provision of warmth, interior access, cellar, ceiling, and floor arrangements within workers' housing.

Within all rows the vast majority of houses have undergone some degree of alteration, largely comprising: new flooring, staircase, ceilings, plasterwork and fenestration. Changes appear at various points throughout the history of the settlement but frequently date to the 1930s when many of the Evans properties passed into private ownership. As at Belper, this reflects occupiers-turned-owners who wished to 'improve' or personalise former estate houses. From the mid-twentieth century onwards, Darley Abbey became a popular settlement with commuters into Derby. As a result, the houses of Darley Abbey have probably been altered more than any others studied in this thesis, and this has undoubtedly impacted on levels of surviving evidence, and it could be argued, their significance for industrial archaeology.

#### *Internal plans and arrangement*

A systematic investigation into the interior form of workers' housing at Darley Abbey has established similarities both along rows and between certain terraces. It should be noted that access was not granted to three of the plan types identified in this thesis: *Plans 21, 22 and 24*. This has obvious significance when establishing a typological sequence and offering subsequent interpretations. This situation is especially problematic as *Plans 22 and 24* are both cluster type arrangements. It has therefore been hypothesised that *Plans 21, 22 and 24* each conformed to a single plan-form. The following classification takes these potential biases into consideration and identifies seven different housing plans used across Darley Abbey. As with the classification of the exterior form of housing above, it should be noted that this typology is a continuation of the form used at Milford (Chapter Five) and therefore

starts with *Plan 18*. This is to enable inter-site comparisons of housing forms without confusion or duplication. Clear linkages between housing groups have been established in Appendix 1.

*Plan 18: corner staircase adjacent to fireplace*

*Plan 18* is present at Mile Ash Lane, The Flat Square, West Row and Brick Row and comprises a three-storey arrangement with a single heated room on the ground, first and second floors (see figure 6.14). *Plan 18* houses have windows to the front and back elevations and direct access to the front and rear of the properties. Access between floors was possible through a winder staircase positioned in the rear corner of the house and adjacent to the ground floor fireplace. In some rows it was partitioned off from the ground floor room with lath-and-plaster walls, as seen at No.2 West Row. *Plan 18* houses vary in size with some examples, such as West Row, being narrower than Brick Row or Mile Ash Lane properties.

The majority of *Plan 18* houses have been extended to the rear with two-storey brick extensions. The consistency of these extensions demonstrates a coordinated programme of work undertaken by the Evans estate. In the majority of examples the extensions provided a separate ground floor kitchen area and first floor bathroom/bedroom and denote changes in expected living standards during the late-nineteenth and early-twentieth century. However, whilst the size and format of the extensions indicates that the Evans estate coordinated the work, the resultant variety of interior arrangement and staircase solutions suggest an element of improvisation in which occupants had an influence. Consequently it is possible that, to a degree, occupants were able to modify the interior arrangement of their properties according to their own requirements as householders.

*Plan 19: rear staircase*

Seen at Poplar Row and Lavender Row, *Plan 19* has similarities with *Plan 13* at Hopping Hill in the form of the staircase (see figure 6.19). *Plan 19* houses comprise a three-storey arrangement with a single heated room on the ground, first and second floors. *Plan 19* houses have windows to the front and back elevations and direct

access to the front and rear of the properties. At ground-to-first floor the winder staircase is comparable to the *Plan 18* type; however, the form differs with a small landing facilitating access into the first floor room. A similar winder staircase at the other end of the landing area provides access into the second floor room.

*Plan 19* houses have also been extended to the rear and the extensions are comparable to *Plan 18*. Similarly, these provided a separate ground floor kitchen area and first floor bedroom and denote changes in expected living standards during the late nineteenth and early twentieth century.

*Plan 20: two-storey*

*Plan 20* appears at Darley Street and the south row of housing at The Hill Square (see figure 6.21). *Plan 20* comprises a two-storey two-up-two-down arrangement with a single heated room on the ground and first floors. These houses have windows to the front and back elevations and direct access to the front and rear of the properties. Originally a winder staircase was positioned in the corner of the rear ground floor room so that the foot of the staircase was adjacent to the rear exterior door.

A proportion of *Plan 20* houses have small single-storey brick-built rear extensions. Due to the variation in form it is likely that rather than being coordinated by the Evans estate, they were constructed individually and probably after the housing was sold into private ownership. All *Plan 20* houses were provisioned with an outhouse and wash house in a rear yard.

*Plan 21: two-storey back-to-back*

*Plan 21* appears at the west row of The Hill Square. Unfortunately access was not permitted into this type of property.

*Plan 22: cluster houses: the Four Houses*

*Plan 22* appears at the Four Houses. Unfortunately access was not permitted into this type of property.

*Plan 23: cluster houses: Lower New Road*

Appearing only along Lower New Road, *Plan 23* properties are cluster houses and therefore each unit is a quarter of a larger building (see figure 6.20). *Plan 23* houses comprise a three-storey arrangement with a single heated room on the ground, first and second floors. *Plan 23* houses have a small early-nineteenth century side extension, which provided a separate kitchen and additional bedroom space. The staircase runs along the rear of the original rooms of the house and is a winder-to-straight-flight arrangement with quarter turn to provide access into the second floor room. As such these properties do not have a significant landing area at first floor level.

*Plan 24: Cluster houses: Upper New Road*

*Plan 24* appears at The Upper New Road. Unfortunately access was not permitted into this type of property.

The above typological assessment identifies seven distinct categories of workers' housing according to differences between the interior plan-forms of properties. This number evidently differs from the four categories identified during the typological assessment of the exterior elevations (as discussed earlier in this chapter) and reveals that there was significantly more variation in the interior form of properties than the exterior façades indicated. A visual representation of the linkages between exterior and interior types is presented in figure 6.22. Of particular note is that the majority of housing from the 1790s, 1800s and 1820s, with differing interior plan-forms (*Plans 18, 19 and 22* respectively) all conformed to the *Group P* arrangement. The current author therefore argues that the *Group P* arrangement was considered a suitable architectural form which could be used even as the interior arrangement evolved, during the course of the later eighteenth and nineteenth centuries. It is noticeable that this form has parallels to *Groups C and D* (Cromford) and *Group H* (Belper) which were used with comparable plans, (*Plans 3 and 5*) differing largely in the form of the staircase arrangement. However, it is apparent that the differences between *Plans 18, 19 and 22*, and other forms used at Darley Abbey gave different provisions of interior access, warmth and arrangement of rooms which need to be examined further. The

following sections of this chapter explore these differences in more detail and demonstrate how these affected the lived experiences of occupants at the site.

### *Internal access*

Analysis of the interior access within workers' housing has been an important element in understanding the privacy arrangements, functionality and living standards of properties within the Derwent Valley. As noted in Chapter Five, subtle differences in the forms of access and organisation of the rooms had important consequences for the way in which the houses were used. This assertion is particularly pertinent to the study of Darley Abbey properties as the original access arrangements appear to have been modified on a number of occasions.

### *Staircases*

It is evident from the assessment of interior fabric that original staircase arrangements at Darley Abbey have not survived in any great quantity. The vast majority of examples surveyed during this thesis have undergone at least one, and frequently several, phases of modification. This strongly indicates that the original arrangements were deemed inadequate for their purpose, and offers an insight into the process of modification within early workers' housing, even if it frustrates attempts to gain a clear understanding of stylistic development. Moreover, as noted above, it was not possible to view the staircase arrangements of *Plans 21, 22 and 24*. The following discussion uses information derived from onsite analysis of *Plans 18-19, and 23* to give as comprehensive an account of staircase arrangements at Darley Abbey as can be constructed at the present time.

The staircases available for analysis within this study conformed to permutations of three categories: winder, winder-to-straight-flight and straight flight arrangements. All staircases were positioned in the corner of a ground floor room and ran along the original rear wall of the house, so that noise from footsteps on the stairs did not travel between neighbouring properties. In the majority of examples where the staircase was accessed from the front ground floor room, it was located adjacent to the main fireplace. This is in contrast to all other forms of workers' housing in the Derwent



Valley where the staircase was situated against the opposite wall to the fireplace in order to minimise the effects of through-draft.

In the first phase of workers' housing (1790s) at The Flat Square, West Row, Darley Street, Mile Ash Lane and Brick Row, the lack of consistency between designs demonstrates that the earliest staircase arrangements within these properties has been removed or heavily modified. In addition, the wealth of variation in the style of replacement staircases indicates that the work was undertaken by individuals rather than under the directorship of the Evans estate. This suggests that changes to the staircase were only made after the properties were sold into private ownership in the 1930s and that the original form survived until then. Today, the only surveyed surviving example of the original staircase arrangement is visible at No. 2 West Row and comprises an unlit stairwell with very steep winder staircases between floors (figure 6.23). The staircase was fully partitioned from the ground floor room with a latch door, although it was open at both the first and second floors with a simple balustrade of a similar style to examples seen at Cromford, Belper and Milford (figure 6.24).

This steep winder form of staircase was a bespoke arrangement specific to The Flat Square, West Row and Darley Street houses. The design may have been a response to the narrow form of this housing, enabling a proper staircase to be installed without intruding extensively into the living space. However, this form of poorly-lit steep winder-staircase also had clear disadvantages for occupants. There are obvious parallels with the ladder-staircase arrangement seen at Mill Street and the Short Rows, Belper, and at both sites homeowners sought to modify the original forms as soon as they were able.

The second phase of house-building in the 1800s at Poplar Row and Lower New Road introduced a winder-to-straight-flight staircase between the ground and first floor. This staircase was not as steep as those seen in the 1790s housing and was divided from the ground and first floor rooms by lath-and-plaster wall and latch door (figure 6.25). This form enabled the first floor room to be accessed independently from a central landing area (figure 6.26). A second winder-to-straight-flight staircase,

positioned at right-angles to this landing, then provided access to the second floor. A similar arrangement has been noted in *Plan 11* properties at Milford (see Chapter Five). A single winder-to-straight-flight staircase was used in the two-storey properties along The Hill Square, but these lacked the latch door and first floor wall partitions seen in the larger Poplar Row and Lower New Road properties.

Of particular significance is the modification of earlier 1790s staircase arrangements at Brick Row, which replicated the form seen in the 1800s housing at Poplar Row and Lower New Road. At Nos. 4 and 13 Brick Row the staircase was partially altered into a winder-to-straight-flight staircase in a manner which left an awkward landing space at first floor (figure 6.27). Given the unusual form and the lack of systematic modification throughout the row it appears likely that these two examples represent the work of individual occupants, rather than a coordinated response by the Evans Estate. This is further evidenced by the array of modifications surveyed as part of this thesis. The most frequent alterations simply addressed the problem of the steep pitch of the ground-to-first floor staircase by elongating the staircase along the rear wall of the house. This alteration was used at Nos. 14 Brick Row, Nos. 11, 14 Mile Ash Lane, Nos. 10 and 12 The Flat Square and Nos. 8, 13 West Row, and enabled a small landing at the first floor to be created (figure 6.28). From this, the original first-to-second floor winder staircase was retained. This modification required the smallest amount of work to the staircase arrangement and demonstrates a difference between the requirements of access between the ground and first floor and first and second floors. It is probable that the difference reflects the users of the rooms and suggests that Darley Abbey householders, similarly to those of other Derwent Valley industrial settlements, were using the first floor to accommodate adults and the open attic as a sleeping area for children. It is envisaged that, with care, children could have navigated the small, steep treads of the original winder staircase.

The staircase arrangement at Lavender Row represents the introduction of a straight flight which enabled the two first floor rooms to be accessed independently from a central landing area (see figure 6.19). The arrangement comprised a lath-and-plaster partitioned staircase between the ground and first floors with a latch door and a balustrade staircase between the first and second floors (figure 6.29). Once again this

form of staircase gave a greater degree of separation between ground and first floors, resulting in privacy between living and sleeping areas. This is in contrast to the levels of privacy between the first and second floor sleeping areas, where the staircase opened directly into the top floor room. The Lavender Row model therefore follows a general pattern of increasing privacy in the nineteenth century between the ground and first floors, also noted in contemporary properties at Cromford, Belper and Milford. Yet it is fundamentally different to the arrangements used by the Strutts at Belper and Milford in that it is not provisioned with any form of exterior lighting source. Lit stairwells do not therefore appear to be part of the domestic building tradition at Darley Abbey and were likely to reflect a Strutt-specific innovation.

### *Room divisions*

The subdivision of workers' housing at Darley Abbey has strong parallels with patterns observed at Belper, particularly the reordering of first floor space in order to increase privacy to the first floor bedrooms, especially after the addition of rear extensions (see figures 6.18 and 6.20). This appears to reflect the changing expectations of the households from the early nineteenth century onwards. The most frequent observable alteration was the subdivision of bedroom spaces in the mid-to-later twentieth century to facilitate an upstairs bathroom arrangement, for example No. 12 The Flat Square, 15 Mile Ash Lane and 4 Poplar Row. These room divisions were part of a wider programme of improvements including the addition of a separate rear kitchen area, outhouses and wash house facilities (figure 6.30). Room divisions at Darley Abbey therefore appear to conform to a noticeable pattern across the Derwent Valley in which changes were motivated by improvements to sanitary conditions.

### *The provision of warmth*

Evidence for the provision of warmth at Darley Abbey is again comparable to the other case studies considered in this thesis with every room having a purpose-built heat source. Likewise, similar programmes of upgrade are apparent throughout the nineteenth century, reflecting a response by the Evans' estate to invest in their workers' housing at a point when new technologies enabled more efficient forms of heating. With the exception of Lavender Row, Darley Abbey houses were constructed

according to the more economic back-to-back flue arrangement apparent at Cromford and Belper. In these houses, the largest fireplace was located in the side elevation of the principal ground floor room on the opposite side to the front door and therefore was positioned to maximise the retention of warmth within the room. In Lavender Row housing, the fireplace was arranged in the rear elevation of the front ground floor room and offered similar provisions to the side elevation arrangement.

The ground floor fireplace did not conform to a general style but varied between housing rows. At The Flat Square and West Row the arrangement comprised a shallow plain stone lintel sat on brick jambs and within a brick chimney breast (figure 6.31). A second variation was apparent at Brick Row where the fireplace had a deeper chisel-dressed stone lintel running the width of the chimney breast and was sat on plain stone jambs (figure 6.32). This Brick Row arrangement was stylistically comparable to the arrangements seen at Belper and Milford. Within Mile Ash Lane properties, the fireplace form was more ornate, with a deeper chisel-dressed stone lintel running the width of the chimney breast, sat on projecting collar stones and brick jambs, as seen at Nos. 21 and No. 15 (figure 6.33). At Lower New Road the lintel stone was shorter and again sat on brick jambs (see figure 6.25). At Lavender Row the ground floor fireplace comprised a segmental brick arched lintel within the brick chimney breast (figure 6.34). Finally, at Upper New Road the arrangement is similar to Brick Row houses with a deeper chisel-dressed stone lintel running the width of the chimney breast and sat on wide plain stone jambs. Despite the stylistic variation of the surrounds, the brick firebacks of all ground floor fireplaces have soot marks which are consistent with the use of a small open range. The use of this type of range is observable in the surviving document sources from Mile Ash Lane, which records the purchase of 'stoves', 'fireboxes' and 'grates' (D5231/1/1).

Subsequent alterations to the form of many fireplaces denote nineteenth century schemes of fireplace upgrade. For example there are a number of lintels, such as No.11 Mile Ash Lane, which are obvious replacements as part of modifications to the fireplace in order to allow the installation of smaller fireplaces (figure 6.35). For a similar reason, the fireplace of No. 13 Brick Row has been altered with an elaborate

brick arrangement inside the original stone surround, in order to incorporate a modern wood-burner and log store.

Within the nineteenth century ground floor extensions of workers houses at Darley Abbey, the presence of an additional fireplace suggests that these rooms were used as a kitchen and scullery area. However, the exact function of these rear rooms remains unclear, as the dimensions of these chimney breasts are too small to accommodate conventional nineteenth-century close ranges. It is therefore possible that within The Flat Square, Mile Ash Lane, Brick Row, Lower New Road and Poplar Row, these rear extensions acted as food preparation and storage areas rather than kitchens.

In contrast to the ground floor fireplaces, first and second floor fireplaces are well represented at Darley Abbey and show consistency in form across all housing types. Due to the position of flues within the chimney breasts of properties, the ground, first and second floor fireplaces are not aligned. As a result, the positions of the first and second floor fireplaces are visible as brick arch supports in the floors below. First floor fireplaces are mostly observable as cast-iron insets dating from the mid-to-later nineteenth century and presumably reflect a programme of upgrade with the development of the more heat efficient register grates from the 1800s onwards (figure 6.36). The reoccurrence of inset designs across all 1790s, 1800s and 1820s housing argues for two important factors in the programmes of upgrade in Darley Abbey. Firstly, that it was coordinated by the Evans' estate and secondly, that at the point of insertion into the properties, these designs were considered suitable for all properties. It is also noticeable that the design of cast-iron insets is more recent than both those at Belper and Milford. Thus two scenarios are suggested. Either that the style of fireplace observable today were one of many that was inserted by the Evans estate during the course of the nineteenth century, or, that it actually represents the only occasion that the Evans upgraded the first floor fireplaces at Darley Abbey, in which case the relatively late design indicates that the Evans were late in making the upgrades.

The proportion of Darley Abbey houses that retain the original second floor fireplace arrangements is greater than that seen at any other settlement studied within this thesis. The form seen during the course of onsite survey undertaken as part of this

thesis is consistent and comprises a brick surround with a brick segmental arched header and hob-grates inset (figure 6.37). The form is observable at all housing rows, such as No. 2 Poplar Row and No. 7 Lavender Row. Thus the provision of warmth within Darley Abbey appears to have been led by the Evans estate until its sale in the 1930s. As such, the provisions are comparable to Belper and Milford and reflect that the Evans had similar intentions to the Strutts in that they were committed to providing quality fixtures but were neither elaborate nor wasteful in their response.

### *Flooring, ceilings and doors*

At Darley Abbey the proportion of original floors, ceilings and doors which survive is especially low and reflects the continual process of upgrades these houses have undergone in the mid-to-later twentieth century. This makes discerning the original character of each housing row and any subsequent cross-comparison difficult. In particular the flooring at every house surveyed as part of this thesis was either a modern replacement or was covered by carpet or laminate flooring. However, it seems likely that original floors consisted of tiles on the ground floor and large, broad timber flooring on the first and second floors.

Original ceiling joists do survive both within building accounts (DRO D5231/1/1) and houses at Darley Abbey and mirror Cromford, Belper and Milford and suggesting that there was a well-established approach to ceiling construction within the Derbyshire region in this period. Within all properties the ceiling joist ran front-to-back with additional beams running across the width of the houses to provide the main supports. In all but Brick Row, the roof structure of the properties is consistent and comparable to Cromford, Belper and Milford, comprising two roughly cut purlins supporting weatherboarding above. However, at Brick Row properties, the presence of king-post trusses at points across the upper floor suggests a different form of construction and the UNESCO inscription documentation has argued that their use was specific at Nos. 6-12 Brick Row in order to facilitate an open floor space. Whilst the UNESCO inscription documents suggests that this was to enable a school room to be used, the current author has argued that its use as an open workshop, supporting a system of

outworking, is more appropriate in the context of industrial manufacture at Darley Abbey.

The style of internal doors within Darley Abbey housing varies according to the date of construction. This parallels a trend first identified at Belper, as discussed in Chapter Four. Darley Abbey housing rows built in the 1790s, such as The Flat Square, West Row, Mile Ash Lane and Brick Row, all have a three-plank latch-door; however, rows dating to the 1800s-1820s, including Poplar Row, Lower New Road and Lavender Row, are fitted with a five-plank latch-door (see figures 6.25, 6.29, 6.37). In addition, where extensions have been added to the 1790s rows, these too have been provisioned with five-plank latch-doors. The consistent use of standardised doors within houses of the same phase indicates that the Evans operated a very coordinated and systematic process of procurement and construction. The high retention rate of these doors throughout the nineteenth and twentieth century reflects the lack of alteration of interior subdivision, but also the perceived aesthetic value of these doors, which have not been replaced or clad by modern alternatives.

#### *Fixtures and outbuildings*

In-built storage cupboards are also commonplace within Darley Abbey properties and are evident in the principal first floor rooms of several housing examples, including: Mile Ash Lane, Brick Row, Poplar Row and Lower New Road. The arrangement of these cupboards varied between housing plans and appears to reflect differences in the form of the staircase. Similarly to arrangements seen in *Plans 11* and *13* (Milford), at Brick Row, Poplar Row and Lower New Road the form of the staircase facilitated a small walk-in cupboard storage area within the principal first floor bedroom (figure 6.38). This situation accords with the arrangements at Milford and suggests this type of fixture and fitting was optional, rather than a purposefully-designed element.

Outhouses, pigsties and the provision of adequate sanitation arrangements is a strong theme within Darley Abbey workers' housing and, similarly to the other settlements considered in this thesis, show strong levels of patronal investment. Documentary sources, such as the building accounts for Mile Ash Lane (DRO D5231/1/1), demonstrate that the Evans invested in the construction of these facilities as part of the

house-building schemes. The first edition OS maps also reveal that each house was provisioned with their own outhouse facility and that this was arranged as a semi-detached structure at the end of garden and yard spaces. This appears to have been a constant feature within all housing rows.

### **Industrial and domestic form, style and planning of workers' housing in Darley Abbey**

The above sections have discussed the various exterior and interior components operating within workers' housing at Darley Abbey. It has demonstrated that the housing forms, especially across *Group P* terraces, were more diverse and comprised subtle architectural differences which subsequently altered the lived experiences of occupants. These variations reflect a number of economic, social and cultural factors which were specific to Darley Abbey, but also reflect a general ongoing dialogue between the needs of industry and occupant welfare, as identified in all of the Derwent Valley cotton settlements considered in this thesis. In addition it also reveals the changing face of the cotton industry from the 1790s onwards with the increase of manufacture at other locations outside of Derbyshire. In particular, the trajectory of housing design at Darley Abbey highlights that the Evans were competing with growing regional textile markets elsewhere. Consequently, these houses reflect a now-familiar combination of influences encompassing: local building traditions, demographic changes, trade conditions and patronly interests. The remainder of this chapter will consider the consequences of this building programme in the formation of the final industrial settlement in the Derwent Valley and will reflect on the key themes of this thesis, as outlined in Chapter One.

### **Darley Abbey housing as industrial units**

The role of Darley Abbey housing as industrial units is difficult to ascertain as there is no formal link between these properties and their use for outworking established in the surviving business accounts. Nonetheless, anecdotal accounts reported by Lindsay (1960, 295) and in the UNESCO inscription documentation indicate that outworking within workers' housing remained a fundamental and prominent part of the manufacturing model used at the Boar's Head Mill up until the mid-nineteenth



century. This raises interesting questions regarding the form of Brick Row. The historical outline of the development of workers' housing provided at the start of this chapter has already highlighted the problematic interpretation made by Thomas (2012) of Brick Row as housing with two school rooms in the attic space. In particular, it was noted that the wording within the building accounts for Darley Abbey (DRO D5231/1/1) was too ambiguous to firmly attribute to Brick Row. Nonetheless, it is evident from the position of windows along the upper floor of the facade and the use of king-post trusses within these rooms that the usual local building conventions used at the site were not followed. One possible explanation for the form of Brick Row is offered in a comparable housing row observed and recorded by Caffyn (1986, 19) at Low Mill, Addingham, West Yorkshire (1787). Here, the upper floor of half the houses in a terrace were constructed as a shared workshop for the occupants and was adjacent to the mill complex, possibly accessed via an interconnecting door (Caffyn *ibid*).

It is possible that Brick Row had a similar function to the Addingham example and that Nos. 6-12 Brick Row operated with two upper floor workshop spaces. Indeed, there is more to commend this interpretation of the arrangement at Brick Row than the assertion that this reflected the provision of two schoolrooms in the terrace, as discussed above. Specifically, the business model used by the Evans' and their market product of specialised yarn meant that there was a demonstrable need for weaving/finishing processes which was not fulfilled within the mill complex. In order to meet demand, the Evans would have required outworking arrangements. Additionally, given the financial outlay of more expensive king-post trusts and extra windows at a time of wider market uncertainties, there is a strong argument that the Evans would be more willing to invest extra in housing which contributed to manufacturing success. Brick Row, therefore appears to be two adjoining terraces of half workshop-dwellings and half accommodation-only arrangements which were both accessed via No. 9 Brick Row.

The argument raised here that part of Brick Row was constructed as two open workshops raises similar questions and parallels with the form of North Street, Cromford (see Chapter Three). However, there are considerable differences between

these two housing rows. Firstly, there is the question of structural viability. The Brick Row workshops spanned across four and three individual housing units rather than the ten properties hypothesised at North Street. The presence of similarly sized open workshop arrangements have been recorded at Manchester (Nevell 2011, 142), Ebbw Vale (Ball 1971, 282), the Bethnal Green area of London (Guillery 2004, 96) and Addingham (Caffyn 1986, 19) and indicates that the size of the arrangement at Brick Row was not extraordinary amongst late eighteenth century established textile industries. Secondly, in the North Street model it was identified that the presence of a series of staircases along the rear of the properties would significantly reduce access and movement in an open workshop arrangement. However, at Brick Row it is not envisioned that there was direct interior access between the first floor of Nos.6-12 and the upper workshop room. Access is understood to have been via the staircase within No.9 Brick Row thereby preserving the openness of the workshop room. Finally, there is the question of fireplaces and whether a chimney stack in the side elevation of each pair would also reduce movement within the workshop. It is noticeable that the fireplaces within Brick Row houses are situated to the front of each house, resulting in only minimal reduction in the openness to the upper floor workrooms (no permission for photographs).

The presence of open workshops at Brick Row strongly suggests the operation of framework knitting from these premises. If this hypothesis is correct, it suggests that Darley Abbey was part of a regional East Midlands tradition with large centres at Mansfield, Nottingham and Leicester (Smith 1965, 31; Giles 1993, 27-28; Palmer 2004, 59). Nonetheless, the lack of evidence, either in the surviving business accounts or building fabric for the purchase and use of such frames means that this assertion remains hypothetical only. What is clear however, is that the workshop arrangement seen at Brick Row, with independent access via No. 9, represent a disassociation of industrial activity from the domestic side of occupancy. This arrangement is not comparable to North Street, Cromford and therefore offered workers a completely different model of manufacturing. Brick Row was not constructed as individual workshops, facilitating the employment of skilled weavers in a pre-industrial context. Rather, it represented a more intensive, proto-industrial arrangement similar to the loomshop models identified by Smith (1965, 37) and Campion (1996, 854-85) in the

Nottinghamshire/Derbyshire region. This, coupled with the surviving correspondence between the Evans' and Nottinghamshire millowners, strongly indicates that at Darley Abbey they were pursuing a policy of recruiting a workforce from the Trent Valley area.

### **Living standards, model housing and social ordering**

#### *Living standards*

In direct parallel to the historical research agendas associated with the Arkwrights and the Strutts, it has been asserted that the Evans acted with both benevolent interests and paternalistic intent in their construction of Darley Abbey housing to a high standard (Peters 1976, 69). This hypothesis is based on evidence from personal correspondence between family members, especially those of Elizabeth Strutt. However, in contrast with other Derwent Valley settlement sites, Darley Abbey was only the subject of praise from one near-contemporary social commentator who writes:

*“I passed through Darley, interesting as the seat of the extensive cotton and paper mills of the Messrs, Evans, and also as an exhibition of their unwearied philanthropy to their numerous work-people. The whole forms a neat town, displaying general comfort, with institutions of all kinds, for the improvement of the physical and moral condition of some hundred families....kindness and rewards are constantly bestowed in promoting cleanliness and neatness, and in stimulating industry and good conduct.”* (Sir Richard Phillips cited in Leicester Chronicle. 9 May 1829)

There is a notable absence of scholarship relating to the living standards offered in workers' housing at Darley Abbey, notwithstanding the work of Lindsay (1960) and Peters (1974), which focuses largely on employment conditions and later Evans' run

community initiatives. As discussed above, a range of factors have encouraged existing researchers to suggest that housing at Darley Abbey merely duplicated, or emulated the living standards of Belper (for example, Peters 1974, 92). This chapter has sought to demonstrate that there were significant variations in the lived experiences of the occupants of different housing rows in Darley Abbey. The most basic form of housing was the two-storey model used at Darley Street and The Hill Square (*Plans 20-21*) and Nos.6-12 Brick Row. These houses were provisioned with staircases, fireplaces, outhouses and yard spaces. Another basic form of housing was present in the narrow three-storey arrangements at The Flat Square and West Row (*Plan 18*). Although these properties offered slightly more interior space, the steepness of its staircase and the lack of demarcated yard areas means that it offered a more basic form of living in comparison to other housing forms at Darley Abbey. The evidence suggests that house construction was planned and staged in phases, and that it was dominated by financial constraints and limited patronal investment. As at Belper, it is therefore likely that the Evans' first house-building schemes were aimed at producing workers' housing which offered acceptable, but modest local standards of living. This fits with the wider model proposed in this thesis, which suggests that early workers housing built by industrialists in the 1790s was functional and informed by local building traditions.

The basic standard of living provided in the 1790s housing contrasts with the later *Plans 19* and *23* arrangements of the 1810s. These appear to offer occupants a higher standard of living with better staircases, inbuilt cupboards and increasing internal partitioning of domestic space. They represent a greater level of financial investment by the Evans in the context of increased competition and expansion in the cotton markets across the region and within the Derwent Valley. The growth of market stability and, increased competition for skilled workers appears to have encouraged the Evans family to invest in a higher standard of housing, at sites such as Poplar Row and Lower New Road. The evidence of Lavender Row (*Plan 25*), suggests that this pattern of investment continued into the final phase of house-building of the 1820s. Lavender Row properties had higher-quality staircases, inbuilt cupboards and increasing internal partitions and thus offered occupants a relatively comfortable standard of living, which once again parallels wider trends in other Derwent Valley

settlements. However, it should be noted that this phase of Darley Abbey is still poorly understood and that only increased access to the interior of houses following *Plans 22* and *24* forms, will confirm this hypothesis.

#### *Model housing and social ordering*

The conclusions drawn above suggest that Darley Abbey cannot really be considered as an example of ‘model housing’ or part of a paternalistic community. The construction of workers’ housing at Darley Abbey was not the product of an overarching, ‘philanthropic’ design. Rather, it was determined by the complex economic and commercial factors which characterised the first years of all new manufacturing ventures in the Derwent Valley. Evidence of social ordering within Darley Abbey settlement is difficult to ascertain, especially given the limited access to the interiors of key types of housing, such as *Plans 22* and *24*. Nonetheless, the interpretation of a proportion of housing in Brick Row as workshop-dwellings introduces a new category of worker, the outworker, to the settlement. Unlike the weavers introduced to Cromford in the 1770s, the outworkers at Darley Abbey appear to be semi-skilled workers. Thus as a result it appears that they were unable to influence their domestic arrangements to the extent envisaged at North Street or The Hill (see Chapter Three). This raises important questions about whether these outworkers occupied a distinctive social and economic position within the community. If so, this may well have been signalled by the topographical separation, but also the architectural differences between the house forms of The Flat Square, Darley Street and West Row, compared with Brick Row. A similar architectural strategy may be evident at Mile Ash Lane, where houses were distanced from the mill buildings along the new turnpike road into the settlement and appear to have offered a higher standard of lived experience. Lavender Row may represent the higher end of this chronological and status spectrum; an area of a higher social status set apart from Brick Row and the Darley Street areas of the settlement. Further research on the occupants of these houses, and on smaller building projects such as The Four Houses, Lower New Road and Upper New Road may shed further light on this pattern of occupation and living standards.

### *Resistance and worker zonation*

Surviving records and accounts from the Evans' estate (DRO D5231/1/1), reveal that the Boar's Head Mill operated a strict code of conduct similar to that used by the Strutts, and Lindsay (1960, 296) and Peters (1974, 75) have therefore argued that the workers' settlement was closely governed by its patrons. However, as at Belper and Milford, there is little evidence that architecture was used to structure this beyond the casual peer/public observation facilitated by the use of wide roads and straight rows. Census data from 1841 reveals that tenants of these properties were all employed in some capacity by the Evans and thus employment bound the occupants closely to their housing. It is therefore likely that the fear of losing employment and living accommodation (what Peters (1974, 74) terms "a closed shop") was an effective deterrent to social unrest. Like their counterparts elsewhere in the Derwent Valley, the Evans relied upon the principle of 'omniscience' within the community to encourage and reinforce particular standards of behaviour and ways of living, within the workers' community.

### *Pomp and ceremony*

This chapter has so far argued that the location of workers' housing at Darley Abbey was influenced by the circumstances of land availability and piecemeal rebuilding. Nevertheless, some elements of the settlement, such as Mile Ash Lane, have been argued by Peters (1974, 73) and the UNESCO inscription documentation to have formed part of a wider processional route through the Darley Abbey settlement which included Darley Abbey School, Brick Row, the Mill and St Mathew's church. Whilst this route is obviously significantly later than the construction of the houses and certainly after 1826 (the date of the school building), it raises the possibility that over time, the layout of the settlement began to be used for ceremonial purposes and on community occasions to reinforce the status of the Evans as patrons, paralleling similar strategies adopted by the Arkwrights and Strutts at Cromford and Belper.

## **Conclusion**

This chapter has highlighted the distinctive character of workers' housing in the final case-study of this thesis, Darley Abbey. Through a detailed examination of the exterior and interior of the properties, Chapter Six has revealed that a variety of housing forms and styles were constructed between the 1790s and 1820s by the Evans family. The housing design reveals the complex dialogue between multiple influences evident during the expansion of the cotton industry in the Derwent Valley at the close of the eighteenth century. This chapter makes the argument that houses at Darley Abbey are not straight imitations of forms seen elsewhere in the Derwent Valley at Cromford, Belper and Milford. Rather, they represent a distinctive response to the requirements of housing an early industrial workforce, and as such are an important part of the narrative of the Derwent Valley. Finally, Chapter Six has shown that the actual composition of properties reflected the needs of industry, patron exploration and the diversity within the types of occupant accommodated.

Notable differences in the design and construction are apparent across workers' housing at Darley Abbey. The earliest forms are seen from the 1790s at The Flat Square, West Row and Darley Street. These houses are characterised by a cautious patronal approach to investment, evident in the narrow width of the properties and their construction in sequential phasing. This approach continued with the construction of The Hill Square in the early 1880s as a mixed arrangement of two-storey back-to-backs and through-properties. In contrast, the broadly contemporary terrace housing at Mile Ash Lane and Brick Row in the 1790s and Poplar Row and Lower New Road in the 1800s demonstrates a greater level of financial expenditure in the housing arrangements. The current author argues that the fluctuation in patronal investment across the 1790s and 1800s housing at Darley Abbey reflects the intersections between the type of occupant, their needs and the cash-flow of the Evans. The 1820s see a different model of investment with the introduction of cluster arrangements at The Four Houses and Upper New Road as well as terrace housing at Lavender Row. The character of The Four Houses is difficult to ascertain, but Upper New Road and Lavender Row argue for increasing expenditure. Chapter Six makes the argument that this later shift in style can be interpreted as being driven by the need

to secure suitable workers. Overall the diversity in housing design and construction at Darley Abbey therefore reflects the complex negotiation between the Evans' sense of patronal duty and the economic realities of house-building against the backdrop of a developing and changeable industry.

The typological assessment undertaken in this case-study explores the linkages between exterior and interior forms of workers' housing. This approach has yielded new insights about daily occupant life. Chapter Six argues for a reassessment of Brick Row. Specifically it determines that Nos. 6-12 had an independently accessed upper floor workshop. This interpretation introduces a new category of worker, the outworker, to the settlement and raises important questions about whether these outworkers occupied a distinctive social and economic position within the community. If so, this may well be an explanation for the topographical separation of Brick Row from The Flat Square, Darley Street and West Row. This hypothesis asserts that half of the housing on Brick Row was therefore two-storey domestic units rather than the arrangement seen today. This has implications for the interpretation of lived experience by the occupant. Specifically, the domestic units below the workshops experienced increased noise and disturbance and a reduced bedroom space and thus privacy. The available domestic space is comparable to that in The Hill Square properties and suggests that within the single Brick Row development there would have been a disparity in the quality of housing provision and lived experience. This raises interesting questions about neighbourly interactions and social hierarchy within a set of housing formerly considered to offer a uniform experience. Initial analysis presented in Chapter Six suggests an increased divergence in occupant living standards during the first two decades of the nineteenth century. However, detailed interpretation and further understanding of these arrangements was limited by the lack of access to key housing groups such as The Four Houses and Upper New Road. This highlights the limitations of the archaeological approach underpinning this thesis, in that it requires the consent and participation of current homeowners. This is particularly problematic at a complex site like Darley Abbey with a large number of housing groups. Thus Chapter Six highlights areas for further research.



## **Chapter Seven**

### **Discussion**

The preceding four chapters have sought to provide a buildings-led analysis of the individual case-studies presented in this thesis. Chapter Seven provides a contextualised discussion of the evidence across all four sites framed against the key research questions identified in Chapter One. In particular, three primary themes have emerged from analysis of workers' housing in the Derwent Valley. First, the re-examination of the influences acting on design and construction has enabled a greater appreciation for the role of traditional domestic architecture in workers' housing. Second, systematic analysis of interior and exterior building fabric has enabled the redefinition of a more comprehensive typological classification system. Third, through a detailed observation of these houses new insights into the lived experience of occupants can be offered. Specifically an increased understanding of the zonation of interior space, worker identity and power-dynamics reveals these industrial settlements to be highly complex arenas of social interaction and culturally-nuanced space.

### **Designing and constructing workers' housing**

In her discussion of scholarly approaches to the topic of 'Improvement', Tarlow (2007, 191) remarks that "...most scholars, from archaeology, history or any other discipline, stick to fairly narrow areas of expertise...". Her comment resonates with the conventional study of workers' housing and highlights the seemingly common practice of thematically-dissecting more disparate elements of the historic period in order to satisfy the academic niches of any number of sub-disciplines. This reflects research priorities within industrial archaeology which have, until recently, lacked the necessary authoritative position to adequately discuss workers' housing to the same extent as other types of industrial space (Hughes 2010, 223; Nevell 2011, 594). As a result, narratives which focus either on technological developments or the careers of prominent industrialists continue to remain important in the archaeological study of the textile industry, with notable exceptions such as Palmer and Neaverson (2005), Nevell (2008) and Casella and Croucher (2010). When linked to workers' housing

this has led to the intense scrutiny of the patrons' intentions towards their workforce and the categorisation of millowners as either 'philanthropic' or 'misanthropic'. This has generated the assumption that all decisions regarding the design and construction of workers' housing represented expressions of the patron's character. Within the Derwent Valley, this has encouraged an interpretation that these properties reflected the personal ideologies of millowners Arkwright, Strutt and the Evans who have been historically regarded as the epitome of benevolent employers.

### *Chronology and design of workers' housing*

This thesis challenges these assumptions and demonstrates that existing research has both overemphasised and distorted the level of patronal dominance in the design and construction of workers' housing. The research presented in this thesis has revealed that variations between housing forms across the four sites were not simply the result of different millowners' ideological tenets or stylistic preferences. Rather, such differences were the consequence of a complex interplay between patron investment *and* a wider array of pre-existing circumstances. Local building conventions, established manufacturing processes, financial circumstances, and the expectations of the intended occupants, all appear to have played a role in determining the built-form of workers' housing. This breadth of influences reveals that Cromford, Belper, Milford and Darley Abbey were inter-linked as part of a network of early cotton workers' settlements within the Derwent Valley.

Local antecedent building conventions and textile housing traditions were clearly influential in the subsequent form of workers' housing in the Derwent Valley. Evidence from the four sites has demonstrated that these factors influenced the architectural design in very precise ways. The plan-forms of these properties, terraces, back-to-back, cluster and hillside arrangements, had strong parallels with pre-existing practices in operation within the Nottinghamshire and Lancashire textile regions. However stylistic details apparent in the door surrounds, fenestration, fireplace and fixtures, conformed to very localised building conventions of the Derbyshire Dales (Cromford), Amber Valley (Belper and Milford) and Derby/Trent Valley (Darley Abbey) regions. These parallels are strongest in the first phase of house-building at

each site and cast doubt on the assertion made by numerous scholars, including Cooper (1991, 243), that the Derwent Valley workers' housing represented a new architectural style created by millowners Arkwright, Strutt and the Evans. Instead it implies that these millowners appropriated necessary traditions and conventions according to their circumstances and that whilst they were involved in the selection of building type, they entrusted the detail of house-building to a series of local building teams. Thus the case-studies examined in this thesis accord with the model proposed by Hughes (2010, 224), who argues that the architecture used in the construction of workers' housing reflected the individual circumstances of each settlement as well as its connection to a wider regional industrial network. This thesis therefore raises interesting questions as to how far such regional examples might contribute to a model for workers' housing nationally.

The presence of these pre-existing architectural traditions offers some exciting evidence for the mechanisms of selection and development in the design of early workers' housing. One explanation for this hybrid between conventional textile housing traditions and localised building conventions, especially in the 1770s and 1780s at Cromford and Belper, might be the degree of convenience it gave the millowners. As Chapters Three and Four demonstrate, through a system of accounting and managerial/overseer figures Arkwright and the Strutts could effectively remove themselves from much of the daily detail of house-building whilst still remaining in control. This level of delegation would have enabled the Derwent Valley millowners to concentrate on their growing manufacturing concerns. The use of pre-existing textile and local building conventions might also be interpreted as evidence that these patrons were apprehensive of introducing radically new housing traditions into a landscape without substantial textile heritage at a time of industrial unrest and with difficulties obtaining land from gentry landowners. Thus, without the extensive success of cotton spinning fully established, with ongoing patent problems and the need to attract a steady workforce, these millowners were fully aware of their vulnerable position. Consequently, the use of familiar housing forms at Cromford and Belper (North Street, Mill Street and the Short Rows) may have been a deliberate attempt to minimise the impact of new industrial housing on existing settlement vistas and social systems and appeal to workers already familiar with textile production.

From the 1790s onwards, the situation was different and housing design across the Derwent Valley showed greater variation in plan-form as the properties became more prominently located within the community. This would have had implications for the way in which the settlements were experienced. Sites became more clearly identifiable as *cotton workers' settlements* rather than *rural settlements* with a cotton mill operating in close proximity. It is likely that the associated changes in housing form represented a greater confidence amongst millowners, as cotton spinning became financially lucrative. Of crucial importance therefore is the point that these houses were part of a new era of cotton manufacture in the Derwent Valley, with very different socio-economic contexts to the earlier 1770s and 1780s period. The change in industrial circumstances affected millowner decisions regarding investment in their housing stock. In particular, large-scale formulaic housing rows, at The Hill (Cromford); Hopping Hill and Chevin View (Milford); and Mile Ash Lane (Darley Abbey), were deliberately juxtaposed adjacent to main thoroughfares. It is argued that this represented the conscious use of housing forms to advertise the success and prosperity of the Derwent Valley. Evidence from the case-studies presented in this thesis, indicates that the deliberate sighting of housing along roads was aimed at enticing workers to the settlements by demonstrating the living standards and relative job-security that they might experience. The display of these uniformed façades may also have been a calculated attempt to reassure late eighteenth century society that the cotton enterprise was morally responsible (Fitton and Wadsworth 1958, 249). At Cromford, this message was formalised by the use of these houses as part of a community processional route which started at The Hill and ended at the mill complex.

The level of change in the 1790s, both in the form and character of workers' housing, is most apparent in the two Strutt-owned settlements of Belper and Milford. The concurrent use of 'L'-shaped, double-fronted and hillside plans across the two sites at Crown Terrace, Long Row, Well Lane and Hopping Hill, are all evidence for the introduction of a new guiding influence in the architectural development of workers' housing. Their presence is understood by Jackson *et. al* (2010, 15) to reflect William Strutt's entry into the family business. Yet other hypotheses are plausible and it is possible that the Strutts sought to use formal architects as the business became more

financially viable. This is not to imply that William Strutt was not responsible for the forms of these properties, but simply to highlight that there is a danger in assuming he was, merely because the houses represent a stylistic change from earlier forms. If surviving, but currently withheld, documentary sources become available to researchers, further research may be able to test these hypotheses.

#### *Architectural style and intended occupants*

The second important issue raised by this thesis with regards to the construction and design of workers' housing, is the correlation between architectural style and intended occupants. The houses offer evidence for a clear relationship between architecture and workers' perceived status. One explanation for this phenomenon is that the rural location of the Derwent Valley, coupled with the use of new technology, meant that there was an emphasis on early millowners to attract or entice workers to the sites. At Cromford and Darley Abbey this was done through the use of 'fashionable' housing. This is especially evident at North Street and The Hill (Cromford) and Lavender Row and Upper New Road (Darley Abbey), where the exterior style and interior fixtures and fittings show greater levels of investment and adherence to contemporary classical taste. It is noticeable that the intended occupants of these houses were skilled weavers (Cromford) and yarn-spinners (Darley Abbey). As such they were in high demand, had long traditions of being housed in quality accommodation and were likely to be familiar with the use of, and meaning behind, classical architecture. Thus these houses raise very interesting questions regarding the way in which millowners manipulated their housing stock in order to conform to the expectations of certain categories of desirable textile workers. It also further challenges the assumption that architectural embellishments were merely a reflection of the millowners' personality or taste.

At Belper this relationship between architectural style and intended occupant, is manifested at the opposite end of the social scale. Here, unskilled labourers were accommodated in the first phase of housing along Mill Street and the Short Rows, in very modest properties, which were stylistically plain and in some cases lacked adequate lighting and formal staircases. A similar situation is evident in the first phase

of Darley Abbey in the two-storey back-to-back dwelling at The Hill Square and narrow arrangements at The Flat Square, West Row and Darley Street.

Across all four case-studies, from the 1790s onwards the presence of multiple but contemporary forms of housing is likely to represent another expression of the linkage between architectural style and intended occupants. However, at Belper, Milford and Darley Abbey these different housing types offered similar standards of living, comparable size and patronly expenditure. This has been interpreted within this study as evidence of the emergence of social hierarchy and division within the cotton settlements. During this period specific types of architecture began to be associated with certain status groups within the industrial classes. This is another important area for future research, as similar assertions have been made about other forms of contemporary industrial accommodation by Guillery (2004, 253,) Timmins (2004) and Hughes (2010, 211). A more refined understanding of the specific use of architectural form to convey notions of occupant social status could be produced if existing documents, known to have details regarding the employment history of the first tenants, were to become available to researchers.

In the early nineteenth century, another identifiable manifestation of the relationship between architectural style and intended occupant is evident in the increased spatial dissipation of housing away from the settlement core. This occurred across all sites, at Water Lane (Cromford); the cluster houses (Belper); East and West Terrace (Milford); and Upper New Lane (Darley Abbey). Three of these rows at Cromford, Belper and Darley Abbey have been associated with accommodating overseers (Jackson *et.al.* 2010, 9). Their introduction to the settlements once again marks a new type of workers' housing; however, this can lead to a tendency to see early workers' communities as being clearly zonated, with elite houses separate from those of lower-status workers. The reality of this situation appears more complex and the spatial separation of this phase of housing at the sites is as much a reflection of the availability of land as it is the social status of the intended occupants. Thus these examples demonstrate that housing form and design reflected the intricate dialogue between patron and occupant alongside the vestiges of pre-cotton traditions and arrangements.

### *Construction and market fluctuations*

The final important issue raised by this thesis with regards to the construction and design of workers' housing, was the relative economic instability of the cotton markets during the course of the late eighteenth and early nineteenth centuries. The impact of this is evident at all sites as the majority of housing rows, such as: The Hill (Cromford); Mill Street, the Short Rows, Long Row (Belper); Hopping Hill, Chevin View (Milford); and Brick Row (Darley Abbey), were constructed piecemeal according to fluctuations in trading conditions. Thus underpinning the actions of the Derwent Valley millowners was a shared sense of economic duty not to undertake housing schemes which could leave their businesses financially vulnerable or construct accommodation that commanded such high rental amounts as to overburden the occupants. For these reasons, this thesis argues that the more economic back-to-back housing forms at Belper, Milford and Darley Abbey as well as the use of courtyard arrangements with the reduced-width properties at The Flat Square (Darley Abbey) were used. Crucially, however, these plan-forms all had significant impacts on the lived experiences of occupants. Thus the design and construction of workers' housing in the Derwent Valley represented a complex interplay of influences, including: industry, manufacturing success, the input of the patron, traditional conventions and the needs of the occupants.

### **Redefining typological assessment**

The second theme to emerge from the study of workers' housing in the Derwent Valley is the value of typological assessment in establishing the character, and subsequent development, of early industrial accommodation. As discussed in Chapter One, typologies are frequently used as a means of establishing trends within large datasets. However, within particular sub-disciplines these are heavily influenced by prominent theoretical approaches which delineate the parameters between defined 'types'. Thus workers' housing typologies are intrinsically linked to established research frameworks and in particular technology-led and patron-led agendas (Nevell 2011, 596). Accordingly, this has promoted a classification system either based on differences visible in the plan-form of workers' housing (such as the presence or

absence of workshops and row/cluster/back-to-back arrangements) or differences in the exterior form (such as decorative finishes). Very rarely are the plan-form and exterior discussed together as the two components of a single housing type. This is particularly evident in the conventional typology established for the Derwent Valley, where a strong patron-led narrative has led to the construction of generalised plan-form typologies. These belie the number and diversity of housing types across the four sites covered in this thesis. More unusual plan-forms have been attributed to millowner-benevolence (Jackson *et. al* 2010, 9) and therefore compared across the four sites. In contrast, more conventional styles and in particular the ‘rows’, have been assumed to represent a single classification of ‘functional’ accommodation provisions (Joyce pers. comm. 2012) and thus are considered only as part of single-site typologies.

This thesis has demonstrated that across all sites, subtle differences exist in both the exterior and interior architectural finishes of housing which have been conventionally identified as a single type. For example, The Hill and Market Place (Cromford); Long Row and Crown Terrace (Belper); Hopping Hill (Milford); and Brick Row (Darley Abbey), reveal a number of sub-categories which reflect their staggered construction as a series of smaller sequential phases. This reveals that larger building projects, that have been conventionally argued to represent enormous investments in philanthropic-communities using a single architectural style (Jackson *et. al.* 2010, 14-15), were actually more staggered and likely linked to a range of other factors. This situation contradicts the assertion made by numerous scholars, including Chapman (1976, 123) and Joyce (pers. comm. 2012) that by the 1790s millowners had changed the manner of investment and were constructing large-scale show pieces linked to their growing social status as members of a new industrialist elite. In contrast this thesis reveals that during periods of expansion, the Arkwrights, Strutts and Evans all remained faithful to a cautious approach to expenditure and argues that the success of these cotton manufacturing ventures was never overestimated.

The different mechanisms for typological change, as demonstrated in this thesis, argue for a greater dialogue between patron and occupant that previously considered. At Mill Street and the Short Rows (Belper); Long Row and Crown Terrace (Belper);



and Brick Row (Milford) subtle differences in the sub-categories, such as positioning of fenestration and the type and quality of interior fixtures, argues for a direct and greater input from building users regarding their domestic environment. Once again, this indicates that house-building was less an expression of a patron's ideology and more of a process in which housing form was a reflection of the needs, or expectations, of the occupants. It is also important to note that this significance only becomes apparent when using the approach taken in this thesis of considering plan-form and elevation in tandem.

The typological approach taken in this thesis has demonstrated surprisingly consistent living standards across numerous forms of housing which had previously, based on the study of exterior elevation alone, been considered to represent stylistically different groups. This is most apparent in the development of Belper in the 1790s where the visually different double-fronted and 'L'-shaped properties along Long Row provided similar lived experiences for occupants. This is also apparent at Milford in Hopping Hill, Chevin Alley and Well Lane properties. Thus this evidence suggests that the conventional interpretation that these houses offered diverse living standards, based on a distinction of exterior form, needs reevaluating to take into account the lived experiences of occupants.

An important contribution of this thesis has also been to consider workshop-dwellings and accommodation-only properties under the same typological framework. This is evident in the evaluation presented for North Street and The Hill properties at Cromford. Prior to this study, North Street has been analysed repeatedly in isolation, separated from other housing forms within the Cromford settlement. By deconstructing the myth that housing form is based solely on the patron's character or is led by technology/manufacturing processes, this thesis has demonstrated significant stylistic similarities between North Street and The Hill properties. In particular, the consistent use of classical details to the exterior and interior suggests similarities in the way that both rows were designed to entice skilled workers to Cromford. Consequently, this interpretation suggests a need for the reappraisal of the accepted hierarchical structure within the settlement based on the distinction between workshop-dwellings and accommodation-only arrangements.

## **Lived experience**

The third theme of this thesis has been to use an analysis of property interiors to refine our understanding of the lived experiences facing occupants in these early industrial houses. This approach challenges the conventional view that all houses offered vastly superior living standards to other industrial or local dwellings and thus casts doubt on the presence of philanthropic intentions behind the construction and form of workers' housing in the Derwent Valley. A comparison across the four case-studies reveals a variety of contemporary arrangements and living standards. For example, the quality-built accommodation at North Street and The Hill (Cromford) and the more modest Mill Street and the Short Rows (Belper), were built just six years apart. This juxtaposition argues for a more complicated economic-industrial-social interaction and reflects the fact that these Derwent Valley houses were both domestic accommodation and an intrinsic part of the manufacturing complex. Thus, as discussed by Hughes (2010, 211), the living standards within workers' houses varied due to prevailing market forces. Those occupying North Street and The Hill properties were skilled and in demand as workers. In contrast the ready supply of unskilled labour meant that occupants at Mill Street and Belper had no such market value and therefore, to an extent, millowners could capitalise on this by providing houses of lesser quality. Yet this is not to argue that the situation and the actions of patrons in the Derwent Valley only represented a calculating capitalist intent. Rather, that the patrons were acting as part of established domestic and textile housing traditions in which motivations of industry and patron were intersected by the living conventions and requirements of the occupants needed to staff the mills.

Despite highlighting the variation in living standards between different forms of workers' houses in the Derwent Valley, this thesis has also identified a basic living arrangement or standard used across all four case-studies. This comprised an individual housing unit with a form of independent access, yard/garden space, outhouse facilities and heating provisions in the ground floor principal room and bedroom space. The consistent presence of these features throughout the valley gives weight to the argument that the basic standard of living was more influenced by established traditions, the need to attract workers and meet their expectations, than the

introduction of new ideologies or charitable gestures by Arkwright, Strutt and the Evans. From the 1790s onwards, some housing began to include a designated food preparation and storage area. This appears most evident within Strutt-owned properties at Belper and Milford, which were provisioned with either a separate food preparation space or a stone thrawl for food storage. At Darley Abbey and Cromford, contemporary housing did not have these distinctive and deliberate separate food storage areas. Their selective inclusion at Belper and Milford may therefore represent one of the occasions in which a direct patronal involvement may be observable. Nonetheless, it is also notable that stone thrawls were a local tradition within the Amber Valley. Consequently, this example acts to reinforce the importance of understanding local vernacular or proto-industrial modes of living and ways of building in order to interpret the subsequent forms of workers' housing.

The second important issue raised by this thesis with regard to domestic space, is the use of management strategies to supervise workers' communities and the impact of these on daily lived experiences. It is evident that different managerial strategies appeared within settlements, and with the exception of North Street (Cromford) and Chevin View (Belper), this amounted to peer observation and self-regulation, rather than direct supervision by a representative of the millowner. Thus, this thesis argues that the workers' settlement at all four sites operated with greater autonomy and independence from the mill complexes than previously considered. This further accords with the assertion made above that the houses of the Derwent Valley lacked 'paternalism' in their design.

Observation and surveillance can also be considered within the permutations of domestic space. Housing in which the staircase was directly adjacent to the front door formed the majority of arrangements at Cromford and early Belper (1780s) and enabled a greater independence between living/working or living/sleeping areas of the house. Similarly, the design of Hopping Hill (Milford) with a rear staircase doorway, also facilitated a high level of independence as it enabled members of the household to directly access the private bedroom spaces from the exterior without passing through the public street-frontage and living areas of the houses. Households in which shift-work dominated the pattern of living would have benefited from this type of

independent arrangement. In contrast, Crown Terrace and Long Row (Belper), all Milford properties (except Hopping Hill) and all Darley Abbey houses had the staircase situated to the rear of the ground floor room. As such members of the household needed to pass through the living space in order to access the more private bedrooms. Thus, arguably, this arrangement facilitated greater control over individuals as their movements could be more closely monitored by family members. It is possible that this design became more popular from the 1790s onwards because of growing interest in the social morality of industrial workers and especially the impact of the mixed-sex mill environment on the virtues of young women (Berg 1985, 6). Consequently, this demonstrates that housing forms within the Derwent Valley were not devoid of social conventions experienced by wider eighteenth century society.

The Derwent Valley houses also demonstrate an observable trend during the course of the 1790s and early-nineteenth century towards the increasing subdivision of bedroom spaces. At Cromford, Belper and Darley Abbey there is extensive evidence for the modification of staircases and first floor plans to facilitate a greater degree of privacy between individual bedrooms. This manifested itself in three ways: the creation of central landings in order to facilitate independent bedroom access from the staircase; the sub-division of existing first floor rooms; and the increased partition of the staircase between the ground and first floors. Milford, it should be noted, was constructed with housing forms that conformed to these three conditions and facilitated a high level of privacy in the first floor. This means that in Milford, subsequent modifications are rarely seen. This form of bedroom privacy was prioritised above illuminating the stairwell and argues for an increased importance of both the bedroom area and segregation between household members. The evidence from the Derwent Valley therefore complements existing findings of Campion (1996), Timmins (2004) and Nevell (2011) who have highlighted similar trends in workers' housing belonging to Nottinghamshire and Lancashire regions of textile production. These findings thus challenge the assertions made in the UNESCO inscription documentation and by Peters (1974, 63) and Joyce (2012 pers. comm.) that "workers slept where they could".

Across all sites presented in this thesis, the second floor area was kept open without partition from the staircase arrangements and appears to indicate a general trend in the Derwent Valley. As these upper floor spaces have been interpreted as dormitories for children (Farmer 2012, pers. comm.), this suggests that the privacy afforded by the first floor bedroom partitioning as described above, was intended for adult members of the household rather than all occupants. This interpretation therefore casts doubt on the scholarly perception as offered by Jackson *et al* (2010, 27) and social commentators such as Buckingham (1849, 217), that children of different genders were segregated within the household arrangements. A more refined understanding of the specific sleeping arrangements could be produced if existing documents, known to have details regarding the household arrangement of the first tenants, were to become available to researchers.

In summary this thesis provides a buildings-led approach to the study of workers' housing and makes a significant contribution to archaeological investigations of early industrial settlements. The strength of this thesis lies in systematic analysis of surviving building fabric, alongside a close reading of contemporary document sources, to move beyond conventional historical discourse and consider the complex variation evident in the built-form. This chapter has explored three prominent research themes which accord with wider agendas in historical archaeology. From a consideration of evidence across all four case study sites, it is apparent that the significance of the Derwent Valley as an early network of industrial settlements extends beyond the patron and technology-led research frameworks which dominate existing narratives and designations. The role of proto-industrial or pre-industrial ways of building and the expectations of the intended occupants were equally important factors in the development of the form of workers' housing. Secondly, through unprecedented access to the interior as well as exterior of these houses, a new typology has been constructed which has redefined elements of the use and character of domestic/industrial space. Finally, through a detailed consideration of the internal spaces of properties, this study has greatly enhanced our understanding of the lived experiences and daily lives of those occupying workers' houses.

## Chapter Eight

### Conclusions

This thesis has used a buildings-led approach to investigate and analyse purpose-built workers' housing in the Derwent Valley. The research undertaken reveals exciting new insights into the creation of these properties and has demonstrated that they were both innovative *and* traditional, reflecting the experimental character of early cotton manufacture. The physical evidence from these houses reveals a heterogenic classification of historic buildings that have in many cases retained a high quantity of original fixtures and fittings, including: food thravls, fireplaces, windows, doors, draught-boards and flooring. This thesis has also drawn on surviving documentary and cartographic sources, which although are limited (as noted in Chapter Two), provide evidence for the building materials and pace of construction of these houses. As a result, this thesis has shown that workers' housing in the Derwent Valley was shaped by a considerable number of socio-economic and cultural factors as a result of case-study specific influences, wider housing traditions and industrial organisation. Investigating these influences has enabled a greater understanding for the circumstances under which the houses were created, the lived experiences of occupant workers and the emergence of new power dynamics and identities.

In reassessing the extant building fabric of workers housing, this thesis has addressed the question of influences acting on the form and design of properties. Central within this approach has been a renewed focus in typological assessment and this thesis has made new contributions to existing sequences used to categorise early textile workers' houses. In presenting a typological system which links the exterior form to interior arrangement, this thesis has demonstrated that cotton workers' housing in the Derwent Valley was significantly more diverse than has been recorded in other branches of the textile industry (19 classifications of exterior elevations and 25 types of plan-form have been identified). This diversity reflects the experimental nature of early cotton manufacture and the unchartered and frequently reactive response by millowners to an unprecedented demand for workers. Although these houses (with the exception of North Street, Cromford) were not a formalised focus of industrial activity, they were

integral to the success of these rural mill sites. Principally, these houses needed to be both desirable enough to encourage or entice a workforce to the mills but realistically affordable for both the millowners constructing them and the occupants renting them.

The renewed focus on typological sequencing and the identification of pre-existing textile housing traditions has helped to inform the character and magnitude of patronal influences. During the initial phases of house-building in the 1770s and 1780s, the use of local building conventions indicates little connection between the architectural design of properties and millowners' personalities. Rather, the decisions behind the architectural forms of these houses are more easily read as a reflection of the occupants' status, expectations and traditions. To the early millowners the first workforce of the cotton industry was not considered an amorphous body, but rather a series of distinctive social groups which required individual housing solutions. This is evident in the selective use of classical detailing to the houses of skilled weavers at North Street, Cromford, and by contrast its absence at properties intended for unskilled labourers at Short Rows, Belper. The exterior of the workers' housing therefore performed as a visual reflection of the perceived status of the occupant within the industrial community and the deliberate choice of pre-existing traditions enabled a familiar social structure to be mapped on to an unfamiliar type of manufacture.

The introduction of a new generation of millowners in the 1790s brought about a change in the dynamic of patronal involvement in workers' housing. Principally, through a planned strategy of deliberately positioning houses to occupy important vistas or roadside locations, industrial accommodation became a more prominent component in settlement morphology. This translates as the actions of an increasingly confident group of millowners who looked to communicate their financial success as a readable architectural legacy observable to contemporary society. These houses, with their regular façades facing onto main thoroughfares (such as The Hill, Cromford and Hopping Hill, Milford), were designed to reflect efficiency, responsibility and respectability. However, housing at Belper and Milford also reveals changes to the form of properties which cannot be explained simply as an outward show of manufacturing success. The introduction of features such as new plan-forms and

skylight windows argues that millowner involvement was directed by a consideration of occupants' daily lives. This interpretation suggests the occupants of these houses also had a role to play in the development of the built-form. In particular the evolution of staircase lighting at Crown Terrace, Long Row (south-west) and Long Row (north), Belper, argues for a complex dialogue between architect and occupants as a series of experimental improvements were made.

Fundamental to this thesis has been the investigation of the lived experiences of occupants in workers' housing. This has allowed the examination of industrial working relations, household activities and privacy arrangements from the perspective of the occupants. Systematic investigation of housing interiors has identified a basic housing standard unit within the Derwent Valley, comprising: independent access, separate sleeping and living rooms, yard space, outhouses and heating. This basic unit is evident across all four case-studies (for example Mill Street, Belper; and, The Hill Square, Darley Abbey), as well as other local houses and demonstrates that industrial accommodation met contemporary socio-economic expectations. The integration of domestic activity with shift or home working within these early cotton workers' houses is particularly important in understanding the lived experiences of occupants. The positioning of the staircase next to the external door demonstrates a policy of preservation of domestic space and mitigation against the intrusion of home-working and shift-working on domestic life. This arrangement is evident at North Street, Cromford; Long Row, Belper; Hopping Hill, Milford; and, Brick Row, Darley Abbey. From the 1790s onwards other observable trends in housing have been identified, including: designated food preparation areas and storage; externally lit stairwells and an increasing privatisation and sub-division of interior space. These later changes, especially the erection of interior partitions, appear to have been occupant-led and reveal a proactive workforce able to enhance or alter their homes to suit specific personal socio-cultural and economic circumstances.

Finally, this thesis has also considered the construction of social structure, power dynamics and emerging identities. Evidence from across the four sites reveals that the management of worker settlements was considerably different from the factory floor. Specifically, the physical location, arrangement and separation of housing



demonstrate that the Derwent Valley millowners never intended to enforce patronal omnipotence with a system of close visual surveillance in the domestic sphere. For the most part, residential management took place through a system of self-regulation and a reliance on the collective will or peer observation to police behaviour amongst occupants. There are notable exceptions to this conclusion such as at Chevin View, Belper, where more direct forms of visual surveillance have been identified in the strategic positioning of garden walls to enable observation from afar. These anomalies to the general trend appear to be driven by pre-existing workforce demographics and identity. Whilst several common features of workers housing across the four settlements have been identified it is equally clear that there is no ‘one house fits all’ approach. Indeed each housing type identified in this study has its own unique set of features and nuances. This variation is a reflection of complex social, cultural and economic drivers and influences prevalent at the time of construction. Consequently, this thesis argues that the documentary and physical evidence contradicts the established assertion that the introduction of purpose-built housing in the Derwent Valley reflected a collective ideological statement of paternalism.

#### *Future Research*

This thesis has made significant contributions to the understanding of the UNESCO world heritage site, the Derwent Valley Mills. Using a buildings-led approach it has provided new insights into workers’ housing, a hitherto poorly understood aspect of the industrial narrative of the valley. Research undertaken across the four sites of Cromford, Belper, Milford and Darley Abbey, comprises the largest systematic study of workers’ housing ever undertaken in the Derwent Valley. This thesis has offered new interpretations of the form and function of houses and demonstrated the importance of a combined typology which links the exterior and interior of the properties to reveal the lived experience of occupants. Fundamentally, the study has challenged existing assumptions regarding the actions of the patron and revealed that the houses were built within a complex framework of inter-related and changing social, cultural and economic circumstances. The insights gained from this thesis demonstrate that the study of workers’ housing has significant potential for application at other early industrial sites, both those involved in the manufacture of

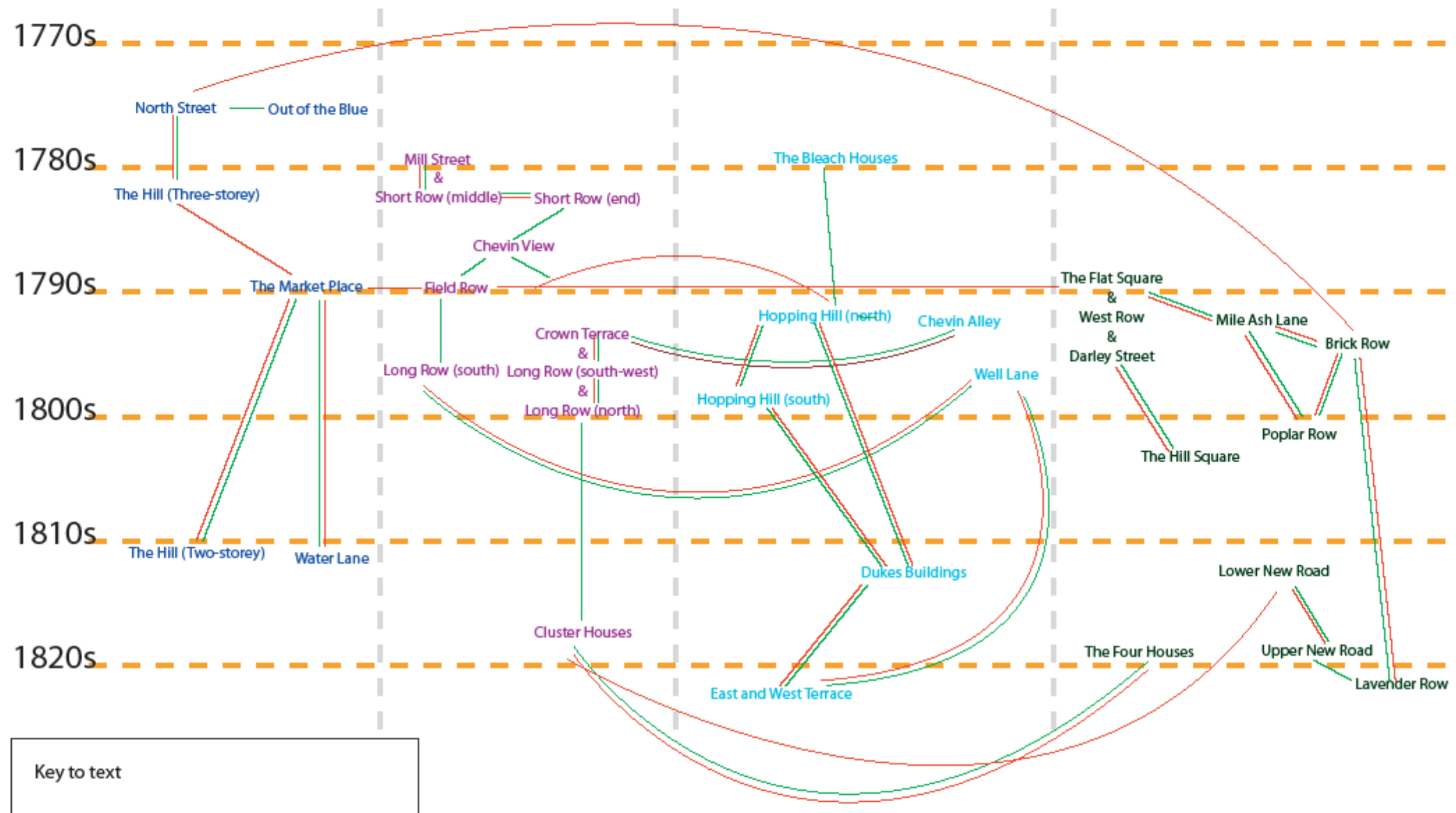
cotton, such as New Lanark and Pawtucket, as well as metal industries, for example Smethwick, Birmingham.

This thesis demonstrates the validity of a buildings-led approach within industrial archaeology. The comprehensive typology generated in this study offers a framework for future research of workers' housing within the Derwent Valley. The relatively limited interpretations offered for Milford and Darley Abbey in comparison to Cromford and Belper do, however, demonstrate the limitations of this methodology. Namely, that access to a large representative sample size of houses is crucial in the success of a buildings-led approach. If increased housing access were to become possible at either Milford or Darley Abbey then further research would be possible into key unanswered questions at these sites, such as the interactions between different patrons, management and workforces. Finally, this methodological approach could also be expanded to include speculatively-built and pre-cotton industry housing. This would be particularly beneficial in understanding the origins of localised building traditions and their subsequent development alongside purpose-built accommodation. By understanding housing at these settlements as a series of networked developments, the complexity of early cotton manufacture and the regional impact of industrial change can ultimately be considered. Such work would begin to answer key questions identified in the new UNESCO Derwent Valley Mills research framework.

## **Appendix 1**

### **‘Genealogy’ of housing types in the Derwent Valley**

The following diagram demonstrates the typological linkages proposed within this thesis between different houses across the four sites in the Derwent Valley. In particular it shows the relationship between the exterior and interior forms of properties as well as the chronological development and spread of housing influences between sites.



Key to text	
Out of the Blue	Housing at Cromford
Long Row (south)	Housing at Belper
Chevin Alley	Housing at Milford
The Four Houses	Housing at Darley Abbey

Key to Linkages	
<span style="color: red;">—</span>	Indicates linkage based on similarities in the interior plan-form between houses
<span style="color: green;">—</span>	Indicates linkage based on similarities in the exterior elevation between houses

## **Appendix 2**

Extract from letter by Christopher Charlton to Derbyshire County Council

labour within the local community, in this case, the wives and children of the lead-mining and agricultural workers of Cromford and Bonsall. However in 1776 Arkwright set about building his second mill and raised money from Peter Nightingale specifically for the purpose of building workers' housing. It is safe to assume that the houses which resulted from this transaction were those which we know as North Street. Indeed North Street is shown on a map of 1777. The North Street houses have certain distinctive features notably the doorways and the windows. The door-jambs beneath a substantial rectangular stone lintel are made up of a number of stones which form a distinctive pattern. The windows have sills and lintels which in each case overlap the jambs and the windows are also notable in the use which was made in their original form of a combination of leaded lights on one side and a sash-window on the other. These details are important because they are repeated precisely (or they were before alteration) in all the three-storey houses which occupy the upper part of Cromford Hill. The plan and the accommodation offered is also similar though there is no evidence that the houses on the Hill ever provided workshop accommodation for weavers as was the case in North Street. It is suggested that this type of building represents the first generation of housing developed in Cromford and that it may be said to date from 1776 until the late 1780's. It is interesting to note that windows of a similar design are found in Cromford Cornmill circa. 1780 and also in the houses at Lea built by Peter Nightingale in 1784. These windows are also found in one range of buildings in the upper Marketplace in Cromford though they are not found in the Lock-up Building which was built in 1790.

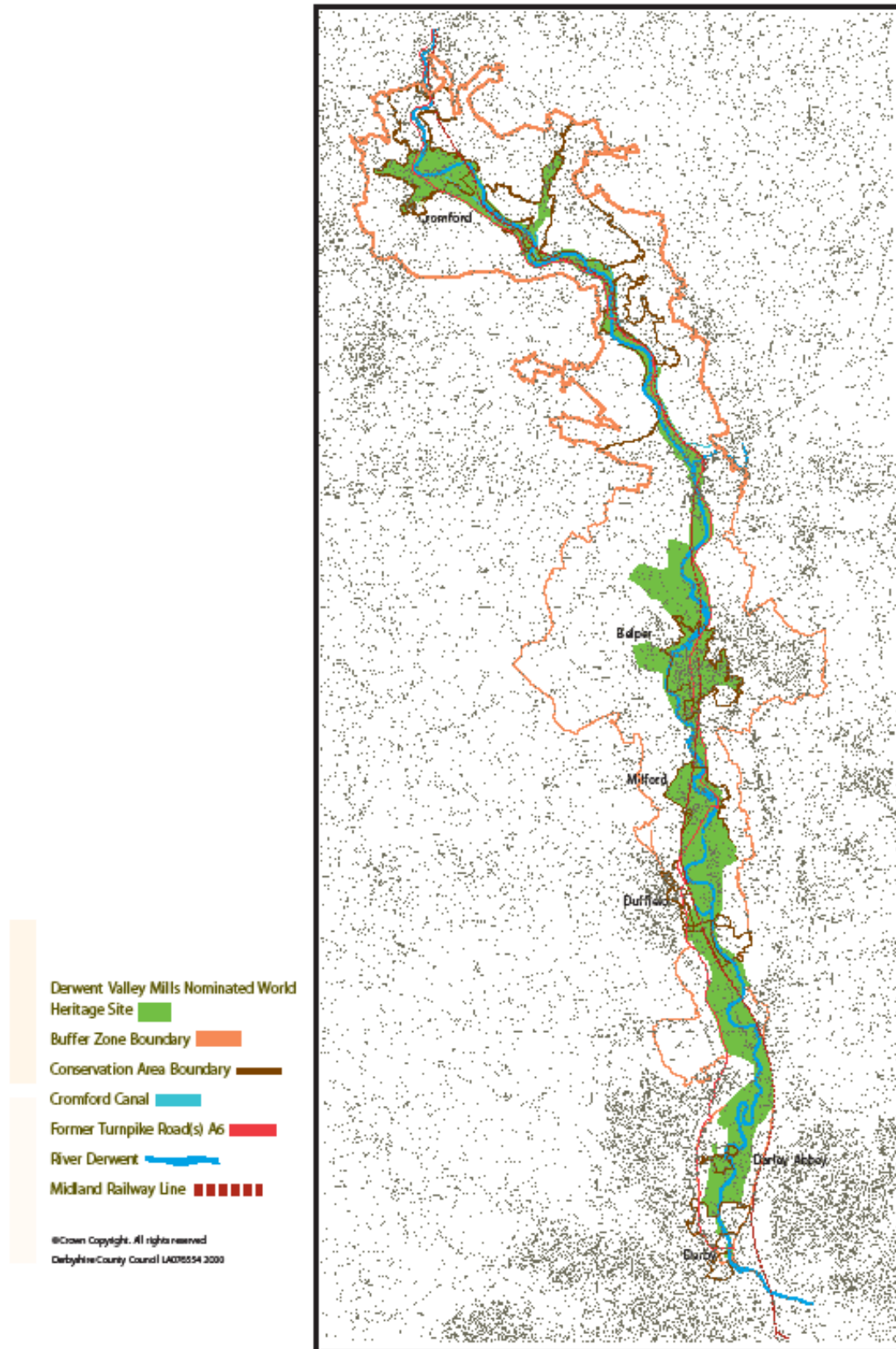
It would appear that the next phase of building is represented by the two-storey houses which apart from their entirely different plan have distinctive door and window lintels. The door lintels instead of the rectangular stone block which might be expected have the two upper corners removed and the window lintels are flat-arched. It is interesting to note that the door lintels are identical to those found in a number of the buildings which occupy the Cromford Mill site. The buildings in question are thought to date from the late 1780's and on the basis of this evidence it is suggested that these two-storey dwellings represent the second phase of house-building in Cromford.

It is known that soon after purchasing the manor of Cromford in 1789, Arkwright set about establishing a market and it is apparent from newspaper evidence that this was in full swing by 1790. It is likely therefore that the market buildings which survived at the lower end of the Marketplace date from this period. However it is not clear how soon after this development the much larger dwellings alongside the Greyhound Hotel and at the lower end of the Marketplace behind the market shops were constructed. These houses are of a type quite unlike any others in the community and were plainly intended for the shop-keepers and commercial classes rather than for the mill-workers.

The other housing which for the moment remains difficult

### **Appendix 3**

Map of the nominated Derwent Valley Mills World Heritage Site



Appendix 3: Map of the nominated Derwent Valley Mills World Heritage Site (after UNESCO 2001)



## List of Abbreviations

BWDBC	Blackburn With Darwen Borough Council
DCC	Derbyshire County Council
DRO	Derbyshire Records Office
NCC	Nottingham City Council
NMR	National Monuments Record
RCHME	Royal Commission on the Historic Monuments of England

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DRO D1216Z/P2	Cromford Moor Lead Mines: Copy Plan, of Ferns also known as Long Sough
D1564/S167	Proposed alterations to two cottages at Long Row owned by Lord Belper and Co
DRO D1564/S21	Plan and Draft of the Strutt Estate
DRO D1564/1	Duffield and Belper Parliamentary Enclosure Plan
DRO D1564/1a-b	Belper and Duffield enclosure award and plan
DRO D1564/3	Part of Liberties of Belper, Duffield and Makeney
DRO D1564/13	Strutt Estate Plans, Principal Map of Milford
DRO D1564/16	Duffield, Belper, Hazelwood and Makeney Enclosure Plan
DRO D1564/23	Strutt Estate Plans, Hazelwood Farm
DRO D1564/27	Strutt Estate Plans, Map of Belper and Duffield
DRO D1564/28	Deed of Arrangement Between William Strutt, George Benson Strutt and Joseph Strutt
DRO D1564/69	Plans of West Terrace and East Terrace, Hopping Hill
DRO D1973 JU/1-7	Belper Unitarian Chapel, Small notebook containing notes of baptisms
DRO D5231/1/1	Darley Abbey Cotton Mill, Ledger
DRO D6948/11/7	Chimney Sweeping Book

DRO D6948/8/1 W.G. and J. Strutt Ltd., of Belper, Derbyshire, cotton spinners,  
Mill Buildings and Houses, Volume 1

DRO D6948/8/3 W.G. and J. Strutt Ltd., of Belper, Derbyshire, cotton spinners,  
Mill Buildings and Houses, Volume 3

DRO D6948/8/8 W.G. and J. Strutt Ltd., of Belper, Derbyshire, cotton spinners,  
Mill Buildings and Houses, Volume 8

DRO D6948/9/14 Road Work and Transport, Volume 14

National Monuments Record, Swindon

NMR 86562 No. 7 The Hill, Cromford

NMR 86563 No. 148 The Hill, Cromford

NMR file Cromford, North Street, Cromford, Derbyshire

Newspapers

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